

Don't you wish, you may get it - a study on the relation between growth aspiration and real growth in German start-ups.

SME Business Management

Master's thesis

Ioana-Silvia Stroe

2012

Table of Contents

1. Introduction.....	1
1.1 Problem formulation and purpose of the thesis	1
1.2 Way of proceeding	2
2. Theoretical background and alignment of the thesis	3
2.1 Short history and definition of entrepreneurship	4
2.2 Approaches to entrepreneurship.....	6
2.2.1 Person and personality traits approach	6
2.2.2 Organizational and environmental approaches.....	8
2.2.3 The theory of planned behaviour.....	9
2.3 Entrepreneurial growth	13
2.3.1 Growth as entrepreneurial success.....	13
2.3.2 Measures and determinants of growth.....	15
2.3.3 A moderated intentional model of growth.....	17
3. Deviation and representation of the hypotheses	21
3.1 Growth aspiration as determinant of actual growth.....	21
3.1.1 Definitions and determinants of growth aspiration	21
3.1.2 Growth aspirations in international comparison.....	23
3.1.3 Hypothesis representation.....	25
3.2 Impact of moderators	27
3.2.1 Technological change	28
3.2.2 Resource availability	32
3.2.3 Hypotheses representation	36
4. Method.....	37
4.1 Research design and data collection	37
4.2 Variables and measures.....	40
5. Results and analysis	48
5.1 Results.....	48
5.2 Discussion	53
6. Implications	61
6.1 Implications for entrepreneurs	61
6.2 Implications for policy makers and venture capitalists.....	63
7. Upshot and outlook.....	65
7.1 Contributions.....	65
7.2 Limitations	68
7.3 Future research.....	69
7.4 Conclusions.....	71
Appendices	73
References.....	74

List of Tables

Table 3.2.1 Classification of organizational resources (Grant, 2011)	29
Table 3.2.2 Dimensions of an organization's environment and their determinants	33
Table 4.2.1 Variables and operationalizations.....	40
Table 5.1.1 Means, standard deviations and Pearson's correlations	49
Table 5.1.1 Means, Standard Deviations and Pearson's Correlations (Contd.)	49
Table 5.1.2 Hierarchical regression analysis: independent and interaction effects on actual sales growth.....	50
Table 6.1.1 Possible actions of new ventures, depending on their growth aspiration and resource availability endowments.....	62
Table 6.1.2 Possible actions of new ventures as answer to their growth aspiration and rate of technology change endowments.....	63

List of Figures

Figure 2.2.1 Representation of the key elements in the Ajzen's theory of planned behaviour	10
Figure 2.2.2 Relation between the theory of planned behaviour and the other approaches to entrepreneurship	12
Figure 2.3.1 Covin and Slevin's model of growth.....	18
Figure 2.3.2 A moderated intentional model of growth	19
Figure 3.1.1 Growth expectation in 53 economies, by phase of development.....	23
Figure 3.1.2 Growth expectation in innovation-driven economies	24
Figure 3.1.3 Hypothesis 1 of this work, in the frame of the moderated intentional model of growth.....	25
Figure 3.2.1 Hypotheses 2 and 3 of this work, in the frame of the moderated intentional model of growth.....	28
Figure 4.2.1 Assumed relation between growth aspiration (GA) and growth (G) over time	43
Figure 5.1.1 Interaction of growth aspiration and resource availability on growth	52
Figure 5.1.2 Interaction of growth aspiration and technological change on growth	52
Figure 5.2.1 Interaction of resource demand/ growth aspiration and resource availability.....	57

1. Introduction

1.1 Problem formulation and purpose of the thesis

During the past decades and particular after the 2008-2010 world economic crisis, entrepreneurship in general and new high-growth ventures in particular have attracted rising interest from academics and politicians, portraying a viable solution to current economic turbulences, with the power to create jobs and human progress within economies that suffer (Read & Sarasvathy, 2005; Santos, 2004; Sarasvathy, 2001).

However, newly founded ventures experience massively different growth rates (Birch, 1979; Gilbert, McDougall & Audretsch, 2006; Kirchoff, 1994). In developed economies, only 4 to 5% of newly founded ventures are responsible for anything from one-third up to the totality of net job creation (Global Entrepreneurship Monitor, 2005).

In trying to find out why only few new ventures achieve high growth, researchers have focused on the entrepreneur, investigating his or her socio-demographical characteristics (Cooper & Dunkelberg, 1987; Shapero & Sokol, 1982), the human capital endowments (Brüderl, Preisendörder & Ziegler, 1992; Colombo & Grilli, 2005) or the psychological traits (Arenius & Minniti, 2005; Townsend, Busenitz & Arthurs, 2010). Other researchers focused on organizational factors such as strategy or resources (Chandler & Hanks, 1994; Newbert, Kirchoff & Walsh, 2007), or on different environmental determinants (Acs, Desai & Klapper, 2008; Dess & Beard, 1984).

However, many studies automatically assumed that willingness to grow is naturally existent and only barriers external to the founder stop that from happening (Autio, Sapienza & Almeida, 2000; Yli-Renko, Autio & Tontti, 2002). This does not hold; it was shown that growth is not an inevitable, natural behaviour, but an intentional one that has to be desired (Davidsson, 1989; Hakim, 1989). Acknowledging this, some researchers in the field (Baum & Locke, 2004; Wiklund & Shepherd, 2003) turned to psychological theories that consider the intentions of founders, such as the theory of planned behaviour (Ajzen, 1991). Currently, the analysis of cognition and especially entrepreneurial intentions and behaviour appears to be the most promising line of research in entrepreneurship (Korunka & Frank, 2003).

In trying to explain growth, this thesis will focus on growth aspiration as determinant of growth. Growth aspiration is used, because, following the theory of planned behaviour,

a planned action such as growth is best predicted by intentions – in other words, aspirations (Bird, 1988; Ginn & Sexton, 1989; Krueger & Carsrud, 1993).

Furthermore, growth aspiration of the founder might be indispensable, but not enough to bring about real growth. Research suggests that the relationship between these two concepts is more complex than was previously suggested, calling for the investigation of eventual moderating effects (cf. Delmar & Wiklund, 2008; Wiklund & Shepherd, 2003). Important growth-enabling factors such as the resources available to the venture and the opportunities offered by the environment also affect the relationship between growth aspiration and real growth (Ajzen, 1991; Wiklund & Shepherd, 2003).

To sum up, the research question of this work is how growth aspiration influences actual growth of German newly founded ventures.

Therefore, the purpose of this thesis is to develop and test hypotheses about the link between growth aspiration and actual growth and examine resource availability and the rate of technological change as potential moderators between the former two.

1.2 Way of proceeding

This thesis proceeds as follows. First, an initial section describes the theoretical background and aligns the work into it. Initially, the history and definition of entrepreneurship are presented. Then, different approaches used to study entrepreneurship are outlined. Furthermore, growth is introduced as a measure of new venture success. Measures of growth and models of growth are being outlined. Next, a moderated intentional model of growth is introduced, that integrates the theories and models presented before.

Then, the concept of growth aspiration is described in more detail. A first hypothesis on the entrepreneur's growth aspiration and the level of growth achieved is formulated. Moreover, the growth-enabling factors that are likely to moderate the aspiration-growth relation are presented: resource availability and the rate of technological change. Hypotheses therefore are being put forward.

As a next step, the empirical study is introduced, focusing on 133 new German ventures; the research method and the data collection are described. Then, the data is presented and the results are analysed. Furthermore, the implications of the research for entrepreneurs, policy makers and venture capitalists are discussed. Finally, the contributions, limitations and suggestions for future research are presented.

2. Theoretical background and alignment of the thesis

We are in the midst of a silent revolution – a triumph of the creative and entrepreneurial spirit of humankind throughout the world. I believe its impact on the 21st century will equal or exceed that of the Industrial Revolution on the 19th and 20th

Jeffrey A. Timmons, *The entrepreneurial mind*, 1989

During the past 40 years, the world has unleashed one of the most revolutionary generations since the Industrial Revolution in the 19th century. This new generation of entrepreneurs has permanently changed the economic and social structure of particular nations, and also of the world. Until recently, big international corporations were thought of being the backbone of the economy and the main job creators. It was not until David Birch proved in 1979, against all previous notions, that 81,5 % of the new jobs in the economy from 1969 to 1976 were created by new and growing smaller firms (Birch, 1979). Other studies (e.g. Davidsson, Lindmark & Olofsson, 1994; Kirchhoff, 1994, 1995; Storey, 1994) confirmed this shift. The expansion possibilities of big corporations seem to be exhausted. Only one third of the 500 biggest European firms were able to grow from 1997 to 2002 with profit increases. Other 30 % had to suffer profit loss because of their growth, 25 % stagnated and 10 % achieved profit increases only through restructuration and downsizing (Malek & Ibach, 2004).

The revolution made by the small new firms was felt especially in the IT industry. For example, 95 percent of the wealth in America today has been created by the entrepreneurial generation (E-generation) since 1980 (Timmons & Spinelli, 2003, p. 4). At the heart of the entrepreneurial process is the innovation. Innovative new ventures open new markets, speeding up structural changes in the economy. The U.S. Department of Commerce found out that since the World War II, small entrepreneurial firms brought about half of all innovation and 95 percent of all radical innovation in the U.S. (Timmons & Spinelli, 2003, p. 10).

By introducing new competition, new ventures contribute to productivity of the respective industries. Entrepreneurship is an impulse for the economic growth and national competitiveness (Global Entrepreneurship Monitor, 2010). Recognizing all these advantages offered by entrepreneurship to the society, policy makers focus their policies on supporting new ventures and on promoting entrepreneurial education. The

entrepreneurial “revolution” is here to stay and is expected to change the way in which the present world economy functions (Timmons & Spinelli, 2003).

For all these reasons, this work will focus on new ventures and their growth.

2.1 Short history and definition of entrepreneurship

In this chapter of the thesis, we will look back at the history of the term “entrepreneurship” and at some of its definitions.

The concept of “entrepreneur” as it is used today has its origins in the 17th century French military history. It was used to refer to the head of a military expedition. Perhaps this is why entrepreneur was often translated into English as “adventurer” or “merchant” (Malek & Ibach, 2004). And until today it is still associated with breakthrough, risk and speculation. In 1734, the Irishman Richard Cantillon brought the concept for the first time in an economic context (Hebert & Link, 1988). By an entrepreneur he understood an actor who purchases goods and services at a specific price, in order to sell them later, if possible at a higher price. For Cantillon, the essence of entrepreneurship was risk-taking: “[...] without an assurance of the profits he will derive from his enterprise” (Cantillon, 1775, p. 47).

Over the course of time, the term was commonly used to designate risk-oriented persons, who stimulate economic processes using new and improved methods. In this sense the term is commonly attributed to the French economist Jean Baptiste Say (1776-1832). Say understood under an entrepreneur someone who coordinated the employment of various production factors. He wrote at the beginning of the 19th century: “The entrepreneur shifts economic resources out of an area of lower into an area of higher productivity and greater yield” (Drucker, 1985).

The pioneer of the field of entrepreneurship is without doubt the Austrian economist Josef Schumpeter (1883-1950). Schumpeterian theories have been widely spread and served as starting point for many researchers within the field. Schumpeter (1934) was practically the first to establish theoretical considerations about entrepreneurs and their importance for economy and society. He believed that what sets the entrepreneur apart is innovation and causing discontinuity. He viewed the entrepreneur more as an

exploiter that combines existing elements in new ways than as a true inventor of knowledge (Schumpeter, 1942).

Since the beginning of the 1980s, entrepreneurship developed, thanks to remarkable advances in its body of empirical knowledge, and became a legitimate field of academic inquiry. Still, it needs more theoretical foundation (Bygrave & Hofer, 1991). The lack of precision in the definition of the term may contribute to the lack of robust entrepreneurship models (Bygrave, 1989). The term has been used for more than two centuries, but the definition is being continuously expanded, corrected and reinterpreted. Bull and Willard (1993) suggest that this wish for of a better definition has misdirected research efforts away from a useful theory of entrepreneurship.

Summing up the definitions found in the literature, entrepreneurship was defined with the help of some key terms such as: risk-taking (Knight, 1921; McGrath, MacMillan, Yang & Tsai, 1992) or innovation (Drucker, 1935). Still, most of the modern definitions underline one or both of the following features: market opportunity recognition and resource marshalling or resource organization (Kirzner, 1979; Shane & Venkataraman, 2000; Venkataraman, 1997). The concept of the entrepreneur as one who finds, evaluates and acts upon opportunity is not new. Schumpeter (1934) underlined this role as a distinguishing factor of entrepreneurs. Kirzner (1973) saw the identification of opportunities in the market as a critical function performed by entrepreneurs. Leading schools of thought in the field such as the Harvard Business School and the Babson College defined entrepreneurship as opportunity recognition: “At the heart of the entrepreneurship process is the creation and/or recognition of opportunities, followed by the will and initiative to seize this opportunities. [...] Entrepreneurship requires the skill and ingenuity to find and control resources, often owned by others, in order to pursue the opportunity” (Timmons & Spinelli, 2003, p.47). Stevenson, Roberts and Grousbeck (1985) recognized opportunity evaluation and resource commitment to that opportunity to be key elements of entrepreneurship. They claim that entrepreneurs prefer to seek opportunities in areas where they have resources, but do not limit the opportunity seeking to the availability of resources.

Shane and Venkataraman (2000) explain that the field of entrepreneurship involves the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and

exploit them (Shane & Venkataraman, 2000).

Bygrave and Hofer, in their prominent article of 1991, define the entrepreneurial process as “involving all the functions, activities, and actions associated with the perceiving of opportunities and the creation of organization that pursue them” (p. 14).

Opportunities and resources are related in entrepreneurship. Entrepreneurial opportunities exist primarily because different agents have different beliefs about the relative value of resources when they are converted from inputs into outputs (Kirzner, 1979; Schumpeter, 1934; Shane & Venkataraman, 2000).

2.2 Approaches to entrepreneurship

Next, we will describe different approaches took by researchers when trying to investigate entrepreneurship. These approaches consider the social-demographic aspects of the individuals, their human capital, their psychological personality traits, but also organizational and environmental aspects. A theory that resumes all these approaches is also presented at the end of the chapter.

2.2.1 Person and personality trait approaches

The main role in recognizing opportunities and arranging resources is played by the individual, by the entrepreneur (Korunka & Frank, 2003). Researchers tried to understand why some people recognize opportunities and are able to steer resources, while others not. In trying to explain entrepreneurial behaviour – new business creation and new business success – most of the research undertaken up until today focuses on the person – the entrepreneur or small business owner-manager. Acknowledging that the entrepreneurial spirit of an individual or of more individuals dictates the success of the new venture as a whole, researchers tried to find out which personal aspects differentiates entrepreneurs from non-entrepreneurs and successful entrepreneurs from unsuccessful entrepreneurs (Brockhaus, 1982; Brockhaus & Horwitz, 1986).

Socio-demographic approach to entrepreneurship

This approach to entrepreneurship tries to explain why different new ventures have different success rates by looking at the demographic information in order to identify a typical successful entrepreneur. It assumes that people with similar backgrounds possess similar underlying stable characteristics (Robinson, 1991). The demographical variables most examined by this research approach have been family background – birth order, role models, educational level of parents, ethnicity/ race, age, gender and marital status (Brockhaus, 1982; Cohen, 1980; Swayne & Tucker, 1973). Some studies found a relationship between migrant background and propensity to engage in entrepreneurship (Baycan-Levent & Kundak, 2009; Levi, 2007), between minority and women entrepreneurs and lower performance (Cooper & Dunkelberg, 1987; Shapero & Sokol, 1982) and parental entrepreneurial heritage and sales growth (Douchesneau & Gartner, 1988; Shapero & Sokol, 1982). Still, the socio-demographical factors yield conflicting results in predicting entrepreneurship (Bowen & Hirsch, 1986; Hisrich, 1990; Shapero & Sokol, 1982).

The human capital theory

The human capital accumulated by individuals also affects entrepreneurial activity and performance significantly (Semrau, 2010). Education is one of the most widely studied entrepreneurial variable. Many studies found a positive relation between education and the success and growth of a venture (Brüderl, Preisendörfer & Ziegler, 1992; Davidson & Honig, 2003; Colombo & Grilli, 2005). There are also studies that did not find any relation or found a negative one (Cooper & Gimeno Gascon, 1992; Stuart & Abetti, 1988). Furthermore, regarding industry experience, studies have found a clearly positive impact of industry on the survival and growth of new venture (Brüderl et al., 1992; Brush & Hinrich, 1988; Colombo & Grilli, 2005; Neiswander & Drollinger, 1986). Entrepreneurial experience as well seems to be positively related to growth of newly founded ventures (Chambers, Hart & Denison, 1988; Colombo & Grilli, 2005; Stuart & Abetti, 1988). Still so, there are a couple of studies that found a negative relation between entrepreneurial experience and success (Van de Ven, Hudson & Schroeder, 1984; Dunkelberg et al., 1987).

The human capital approach was thought to provide more insight than the socio-demographic approach, since, seen from this perspective of human capital, the decision to enter self-employment is the result of a conscious decision taking into account one's competencies and experience, rather than of certain fixed propensities (Wagner & Ziltener, 2008). However, it seems to provide mixed evidence.

The personality trait approach to entrepreneurship

Since the 1950s, a large body of research has been dedicated to the research and discovery of entrepreneurial personality traits. The personality trait approach to identifying entrepreneurial tendencies includes several psychological variables such as personal character traits and cognitive factors (Korunka & Frank 2003; Rauch & Frese 2007; Robinson, 1991).

A set of five personality traits (McClelland, Atkinson, Clark & Lowell, 1953; McClelland, 1961) has been established, that “is invariably at the forefront of discussions of entrepreneurial profiles” (Vecchio, 2003, p. 307). This set of traits, “the hallmarks of entrepreneurial personality” (Vecchio, 2003, p. 307), consists of *need for achievement*, *risk-taking propensity*, *internal locus of control* (belief that control of future outcomes resides primarily in oneself; Rotter, 1966), *self-efficacy* (individuals' confidence that their own competence will help them succeeding at a given task; Gist & Mitchell, 1992) and *need for autonomy*. Results show that entrepreneurs possess similar degrees of need for achievement, internal locus of control and self-efficacy (Arenius & Minniti, 2005; Hansemark, 2003; Townsend et al., 2010). However, the results for risk-taking propensity vary and are contradictory (Wagner & Ziltener, 2008).

All efforts to couple these five factors with entrepreneurs have mixed results (Gartner, 1988). Also, the causality relation between traits and entrepreneurship can be questioned; it is unclear whether such traits are the cause or the effect of entrepreneurial activity (Brockhaus, 1982).

2.2.2 Organizational and environmental approaches

Through the years, more and more of the personological characteristics have been discarded or found to have been measured ineffectively (Carland, Hoy & Carland, 1988;

Gartner, 1985). As a result, when trying to explain success of new ventures, the focus was switched to factors other than the individual. This new line of thought led by Garter (1985) took the entrepreneur out of the focus and defined entrepreneurship as a process by which opportunities are recognized and ventures are created (Bygrave & Hofer, 1991).

In this process, the *organization* was seen as the primary level of analysis and the individual only as the sum of the activities he or she undertakes to enable the organization to come into existence (Gartner, 1988). Many studies tried to explain success of new ventures by looking at organizational factors: the strategies that the firm engaged in (Covin & Slevin, 1989, 1990; Pierce, Freeman & Robinson, 1987), the resources the firm possesses (Cooper, Gimeno-Gascon & Woo, 1994; Sanders & Nee, 1996), or the networks around the organization (Aldrich, Rosen & Woodward, 1987; Bosma & van Praag, 2002; Davidsson, 2002; Witt, 2007).

Another element in the entrepreneurship process was the *environment* of the new venture. Theories have been proposed and empirically supported suggesting that organizations are affected by their environment (Aldrich & Wiedenmayer, 1993). Studies were made involving environmental munificence and dynamism (Covin & Covin, 1989), industry categories (Hay & Ross, 1989) or the interaction between structural, cultural and environmental factors (Fombrun & Wally, 1989)

Still, both academic theorists and practitioners such as venture capitalists persist in classifying entrepreneurs as being identifiable personality types and in arguing that venture success is more dependent on the entrepreneur than on any other factor (Sandberg, 1986). Newer studies make again the attempt to confirm the importance of personality traits for entrepreneurial success (Korunka & Frank, 2003). Carsrud, for one (Carsrud & Johnson, 1989; Carsrud, Olm, & Eddy, 1986) proposed using more progressive psychological paradigms and accounting for the dynamic interaction between the individual entrepreneur and the environments (financial, technical, etc.) in which new ventures operate.

2.2.3 The theory of planned behaviour

We described above the personality traits and we also brought up the organizational and

environmental approaches to entrepreneurship. The personality traits approach to entrepreneurship has been criticized because of mixed empirical results in predicting entrepreneurial success and because it does not touch upon other important factors of entrepreneurial success such as the organizational characteristics and the environment of the new venture (Gartner, 1985). On the other hand, the practitioners in the field do not agree with considering the organizational or the environmental approaches alone (Sandberg, 1986).

A more promising approach of explaining successful entrepreneurial behaviour that ameliorates the drawbacks of the other approaches discussed is needed. Such an approach is offered by the theory of planned behaviour (Krueger, Jr. & Carsrud, 1993).

This theory defines the ability of an individual to achieve a specific behaviour in terms of intentions and control over that specific behaviour. The theory of planned behaviour is a psychological theory developed by Icek Ajzen in Ajzen (1988, 1991) that aims at explaining and predicting specific actions in specific contexts. The theory of planned behaviour is well established (Olson & Zana, 1993; Petty, Wegener & Fabrigar, 1997) and validated (Locke, 1991).

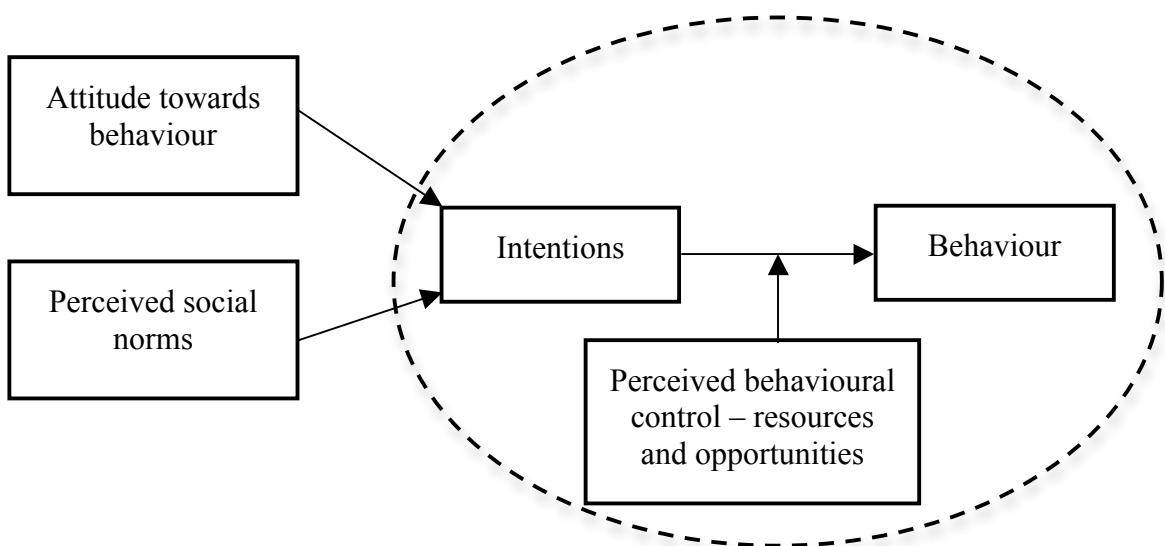


Figure 2.2.1 Representation of the key elements in the Ajzen's theory of planned behaviour (The simplified theory of planned behaviour with its main components is pictured in the dashed circle)

Source: own representation based on Ajzen's theory of planned behaviour (1991)

The theory of planned behaviour first looks at the manner in which entrepreneurial intentions arise. The two primary antecedents of intentions reflect the perceived desirability of performing the behaviour: *attitude towards behaviour* and *perceived social norms*.

Attitude towards behaviour is a personal factor and refers to the degree to which a person has a favourable or unfavourable evaluation of the behaviour in question (Ajzen & Madden, 1985). The attitude towards behaviour derives from the anticipated utility and the perceived value of future actions. A wide range of personal abilities strongly influences anticipated utility, thus influencing the attitude towards behaviour (Wagner & Ziltener, 2008).

The second predictor of intention is the *perceived social norms*, a social and environmental factor; it refers to the perceived social pressure to perform or not perform the behaviour (Ajzen, 1991). Social norms arise from the attitude of key individuals with an influence on the person in question, concerning the action in question – such as the will to actively support a new venture. But some personality traits of the entrepreneur like internal locus of control, mentioned in chapter 2.2.1, can also moderate the strength of the societal norms influence (Wagner & Ziltener, 2008).

These two elements influence *intentions*. Intentions are the main determinants of behaviour. They are assumed to “capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert in order to perform the behaviour” (Ajzen, 1991).

But intentions are not enough to make the behaviour happen. The person or firm needs also the capability to control or perform the wished behaviour. To the extent that a person has both the required opportunities and resources, and the intention to perform the behavior, he or she should succeed in doing so, according to Ajzen (1991).

For this purpose, the theory of planned behaviour introduces a fourth component. The *perceived behavioural control* refers to people’s perception of the ease or difficulty of performing the behavior of interest. It reflects the perceived feasibility of performing that action and is related to perceptions of self-efficacy (Wagner & Ziltener, 2008). The factors that influence the control over the intended behavior are: *resources*, such as financial or organizational resources; and *opportunities*, like market chances, industry characteristics (Ajzen, 1987).

To sum up, intentions would be expected to influence performance of behaviour if the person has control over that behaviour, and performance should increase with more behavioral control. Interestingly, despite its intuitive plausibility, the interaction hypothesis has received only limited empirical attention (see Locke, Mento & Katcher, 1978; Sheppard, Hartwick & Warshaw, 1988; Wiklund & Shepherd, 2003).

In this work, the theory of planned behaviour will be used to explain the differences in entrepreneurial success rates, due to the advantages it offers: it integrates the approaches focusing on the personality traits of the entrepreneur, but adds also elements that were not taken into consideration by the personality trait approach, such as the organization and the environment. Furthermore, researchers advise the use of it in entrepreneurial research (Korunka & Frank, 2003).

While the intentions reflect personality traits, behavioural control factors reflect the organizational and environmental approach to entrepreneurship, by adding the organization's resources and the environmental opportunities.

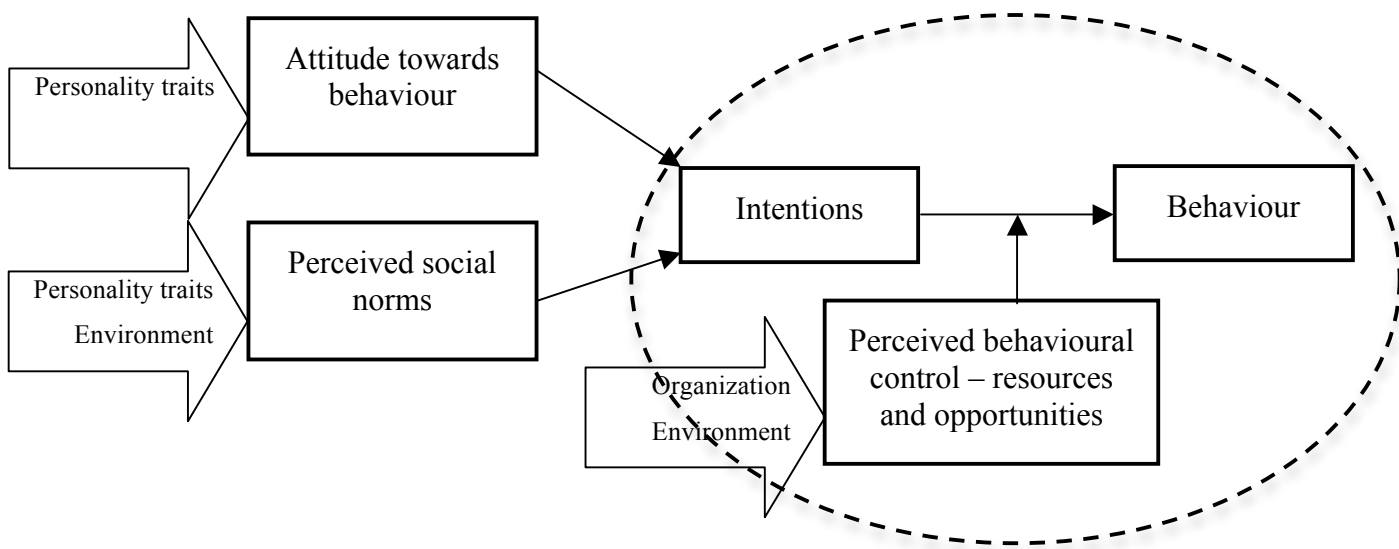


Figure 2.2.2 Relation between the theory of planned behaviour and the other approaches to entrepreneurship

Source: own representation based on Ajzen's theory of planned behaviour (1991)

2.3 Entrepreneurial growth

Bite more than you can chew, and then chew it!

Roger Babson, founder of the Babson College

In this section, we will look at how researchers defined new venture success and find out that growth is the one of the best proxy for it. Having proven this, we will look at the measures and determinants of growth. We will find out that growth is an intentional phenomenon, and on that basis we will introduce a moderated intentional model of growth, on the basis of which this thesis will further develop.

2.3.1 Growth as entrepreneurial success

As pointed out in the last chapter, researchers have tried to find out what lies at the heart of entrepreneurial success. In this chapter, we will take a look at what new venture success actually is.

While start-up firms create a substantial economic impact on most economies, the failure rate of new ventures seems to remain high over time: up to 80% of all new companies do not withstand more than 5 years (Faltin, 2008). Moreover, many of those who do survive might not be successful.

While for a big company success might seem easy to define, e.g. long-term performance of the listed shares, for small ventures it is not that easily quantifiable. Surrounded by uncertainty, with revolutionary ideas and red initial numbers, new ventures that look unsuccessful might turn out to be the next Google, or not. The question that arises is what success of new ventures is? One has to bear in mind that success is defined differently, depending on the stage of development (Brush & Vanderwerf, 1992; Chandler & Hanks, 1993).

Witt (2007) assumes that a company goes through different stages: idea and planning, creation, proving, expansion; and that at each stage success is defined in another way. For a nascent entrepreneur, success would mean to complete the idea and planning phase and move to the actual foundation. After the creation of the new venture, in the

first year/s when the company is “proving” itself, success can be measured by the subjective evaluation of the entrepreneurial success by the founder (Witt, 2007). However, subjective evaluations of the founder can vary a lot, given that entrepreneurs have different satisfaction levels and feelings regarding the same performance (Chandler & Hanks, 1993). A better way to operationalize success during the proving stage of the venture seems to be its survival (Van Praag, 1999). It is well known that most small businesses fail in the first years (Faltin, 2008); thus, persisting in the market can be seen as success. Allen (1985) uses the definition: “success is defined as a business that leaves the incubator after several years and continues operation”.

Still, there must be something more essential to an economy and to the world than simply the presence of a number of new firms that survived. After the first phases in which the venture has proven that it can persist in the market, success is reflected by the company’s growth rates (Witt, 2007). Growth indicators can be sales, number of employees or balance sheet total. Another group of success measures for ventures that passed the initial stage are ratios, like profit ratio or return on investment. The main problem with profit as a success measure is the trade-off between growth and short-term profitability. It is common that new ventures pass by current profit in an attempt to achieve future growth rates.

In selecting the appropriate measure for success, company-related measures are to be preferred to subjective, personal evaluations, and measures should be dependent on the development stage of the venture (Witt, 2007).

This work will focus on company’s growth rates, as one of the most important group of measures for new venture success (Bhidé, 1999; Venkataraman, 1997). Growth was chosen because growth-oriented entrepreneurial behaviour belongs, together with innovation-oriented behaviour, to the high-impact entrepreneurship (Global Entrepreneurship Monitor, 2010). Growth-oriented entrepreneurship and business growth are often seen as driving factors for job creation, and as enhancing competitiveness of nations (Autio, 2009; Bowen & De Clerq, 2008). Storey (1994) asserted: “out of every 100 small firms, the fastest growing four firms will create half of the jobs in the group over a decade”. High-growth entrepreneurs, known also as “gazelles” – term popularized by U.S. economist David Birch – receive high attention from the policy makers because their companies contribute a disproportionate higher share of all the new jobs by new firms (Acs, 2008). Moreover, high-growth

entrepreneurs are key promoters of technological innovation and diffusion of new technological knowledge (Kulicke, 1993). Yet, it is commonly observed that the variance between the growth rates of new ventures is higher than in the case of established firms (Gilbert et al., 2006). This work will try to answer the question of why some newly founded ventures grow more than others.

2.3.2 Measures and determinants of growth

There are few explicit definitions of new venture growth or business growth available in the literature. Growth is usually seen as the mere positive increase in the sense of a positive size change (Albach, 1965). In this paper, new venture growth is defined as the process of increasing the economic activity and value of that venture.

Researchers have “defined” growth by addressing different types of measures of growth.

Based on broad reviews of the literature, Ardishvili, Cardozo, Harmon and Vadakath (1998) and Delmar (1997) use very similar lists of possible growth indicators: company’s assets, employment, market share, physical output, profits, and sales. Sales would be the most preferred measure of growth, should only one be chosen (Ardishvili et al., 1998; Hoy et al., 1992), due to its broad accessibility, relative insensibility to capital intensity and because it can be used across different conceptualizations of the firm (Delmar & Wiklund, 2000; Delmar, Davidsson & Gartner, 2003). Employment for example is a more direct indicator of organizational complexity. If one focuses on the managerial implications of growth or on the firm’s resources, the number of employee seems to be more appropriate for studying growth. An evident disadvantage of employment as a growth indicator is that it is affected by machine-for-man substitution, outsourcing and make-or-decisions (Delmar, Davidsson & Gartner, 2003).

Since there is no one better growth indicator, researchers suggest the use of different indicators of growth (change in sales, employees, or market share) depending on one’s research interest (Davidsson, 1989; Delmar, Davidsson & Gartner, 2003).

Furthermore, growth can be organic through expansion of the current activities or by acquisition of existing companies. From an entrepreneurship point of view, organic

growth is more interesting, since it is concerned with the value creation and resource combination. Moreover, newly founded ventures mostly grow organically: among firms younger than ten years, 58 to 96 percent of total growth was organic (Davidsson & Delmar, 1997).

Growth is not easy to study, since, unlike the biological individual, it can change and transform itself in an indeterminate number of ways (Davidsson, Delmar & Wiklund, 2006).

Just like in the case of success operationalizations, many researchers tried to explain firm growth with the help of transformative stage growth models or so called metamorphic growth models (Dale, 1952; Davis, 1951; Drucker, 1954; Greiner, 1998; Steinmetz, 1969; Stanworth & Curran, 1976). They saw companies as biological organisms rather than social organizations and assumed that they must grow and pass through all stages of development or die trying (Churchill & Lewis, 1983). Greiner (1998) for example suggests the following phases: creativity, direction, delegation, coordination, collaboration, and back to roots. The metamorphic models assume that, at each stage, the role that top management plays, the strategic focus, the organizational structure needed, control system or reward systems are different.

These models have considerable limitations (Sexton & Bowman-Upton, 1991; Storey, 1994;) First of all, not all organizations progress through all stages. Secondly, not all have the same characteristics in each stage (Covin & Slevin, 1997). Moreover, firms might achieve one particular stage (e.g. survival) and stop there (Storey, 1994).

In a fast moving world, a model that suggests some sort of orderly, predictable metamorphosis from one organizational stage to another cannot hold.

Researchers have also tried to explain growth by putting forward different growth determinants and categorizing them. One stream of research, rooted in strategic management and organizational theory, looked at the firm's strategy, structure, and environment in trying to explain growth (Covin & Slevin, 1989; McDougall & Robinson, 1988; Hoy, McDougall & Dsouza (1992). The second research stream is rooted in the micro behavioural perspective and is concerned with the personal characteristics of individual entrepreneurs, including their education, experience and personal traits such as need for achievement, risk-taking behaviour or motivation

(Bailey, 1986; Davidsson, 1991).

Furthermore, researchers recognized that these two perspectives introduced above have to be integrated in order to offer a complete view of growth determinants. One such example that impacted the research in the field (Naffziger & Hornsby, 1994; Wiklund & Shepherd, 2003) is Sexton and Bowman-Upton's growth model (1991). They propose two main determinants of growth: *marketing* and *management related factors*. The main *marketing* determinants of the Sexton and Bowman-Upton's model are: the size of the market niche, the expected duration of the opportunity window and the product life-cycle stage of the firm's product line. The main *management* related determinants of growth in this model are the entrepreneur's propensity for growth, his or her ability to manage growth, and his or her ability to identify opportunities and to exploit them.

This model overcomes the flaws of stage growth models by considering that each company's particularities and not assuming that companies in the same age are similar. Sexton and Bowman-Upton's model of growth is appropriate for entrepreneurship and new venture research, since it recognizes the importance of the owner-manager in the growth process.

2.3.3 A moderated intentional model of growth

The emphasis within entrepreneurship research has been mostly set on growth (Autere & Autio, 2000). The pursuit of opportunity has always been seen as resulting in growth (Penrose, 1959). The emphasis on growth was so strong that many studies automatically assumed that willingness to grow is existent and only barriers external to the founder stop that from happening (Autio et al., 2000; Yli-Renko et al., 2002). This does not hold: growth seems to be under the control of the founder-manager. Only those that have decision power over the direction of the small venture can initiate, foster and nurture growth (Sexton & Bowman-Upton, 1991). Several studies attested that and showed significant differences between growth aspirations (Davidson, 1989, 1991; Oakey, 1993; Reynolds, 1988; Storey, Keasey, Watson & Wynarczyk, 1987). Growth rates, just as founding the venture itself, are dependent on the founder's motivations and intentions. In a study on 400 Swedish small business owners from 1989, 40% of the sample firm had no intention to grow at all, due to fears of reducing employee well-being and loss of control (Davidsson, 1989). UK numbers from 1987 show that 55% of

almost 800.000 small firms did not plan to grow (Hakim, 1989).

It seems that growth is not an inevitable, natural behaviour, but an intentional one.

One of the few models that recognize the intentionality of growth is Covin and Slevin's (1997) model of growth:

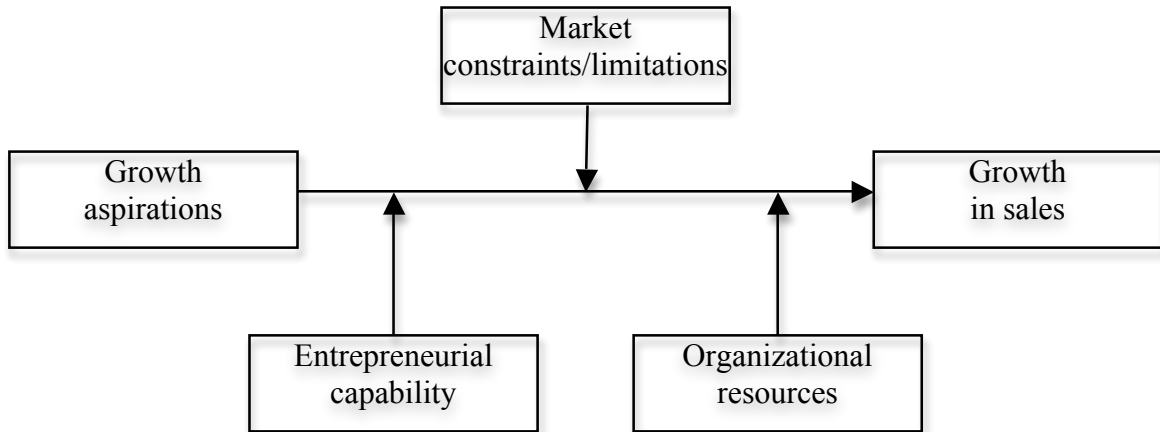


Figure 2.3.1 Covin and Slevin's (1997) model of growth

Source: own representation based on Covin and Slevin (1997)

In Covin and Slevin's model of growth, *growth aspiration*, depicting the entrepreneur's desire or propensity for growth is the main determinant of growth. Then, a series of moderators are considered. *Entrepreneurial capability* includes what Sexton and Bowman-Upton's called management determinants of growth (as mentioned in chapter 2.3.2): the ability to manage growth and ability to identify and exploit opportunities. The *market constraints/ limitations* moderator, similar to the marketing determinants of the Sexton and Bowman-Upton's model, includes the opportunities available in the market, their size and the expected duration of the opportunity window. Then comes the *organizational resources* moderator. Organizational resources include employees, financial resources, intellectual and other intangible assets, as well as technological capabilities and equipment.

In this paper, we will advance a moderated intentional model of growth, based on the theory of planned behavior and on Covin and Slevin's model of growth.

The first main reason for adopting these two frameworks is that they both consider the intentionality of growth.

Intentionality is a critical characteristic of emerging organizations in general. Just like

the decision to start a business is a choice of the business founder, it can also be assumed that the decision to grow the business is a choice consciously taken by the entrepreneur (Ginn & Sexton, 1989). Growth is an intentional behaviour* (Bird & Jelinek, 1988; Bird, 1988; Ginn & Sexton, 1989; Krueger & Carsrud, 1993), and that is why we base on the strength of the intention to perform it when explaining it.

The theory of planned behaviour introduces intentions in trying to explain an intentional behaviour such as growth. Covin and Slevin's model of growth recognizes as well that growth is under the control of the entrepreneur and introduces growth aspiration as the main determinant of growth.

Furthermore, both the theory of planned behaviour, and Covin and Slevin's model of growth recognize that the relationship between growth aspiration and growth is influenced by other variables as well. The theory of planned behaviour calls these moderators behavioural controls and identifies them as resources and opportunities available to the entrepreneur. Covin and Slevin's model underlines as moderators on one hand the market limitations and on the other the organizational resources available. Combing these determinants of growth, we introduce our moderated intentional model:

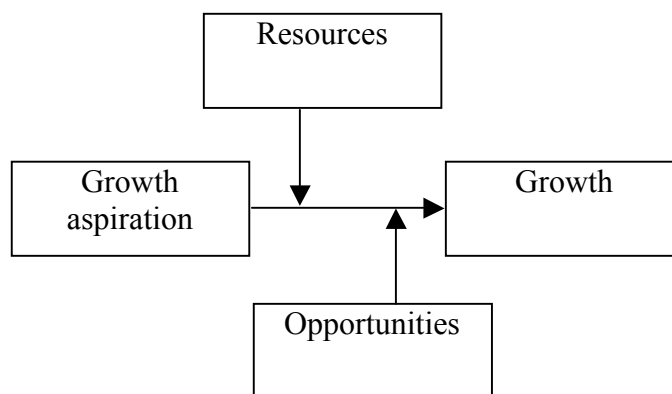


Figure 2.3.2 A moderated intentional model of growth

Source: own representation based on Ajzen's theory of planned behaviour (1991) and on Covin and Slevin's model of growth (1997)

* There are also cases like the Harry Potter book series for example, where huge growth was not intended or expected. This cases are unfortunately too rare to be theoretically considered in this work.

There are already studies in the literature that integrated different growth determinants and tried to explain growth with the help of intentions and the theory of planned behaviour and found positive results (Bagozzi & Baumgarten, 1989; Delmar & Wiklund, 2003; Krueger & Carsrud, 2010; Liao, Welsch & Pistrui, 2001, Wiklund & Shepherd, 2003). This encourages us to follow the same line of research.

In the following chapter we formulate hypotheses and find out to what extent is the effect of entrepreneurial growth aspiration on growth moderated by resources and opportunities.

3. Deviation and representation of the hypotheses

3.1 Growth aspiration as determinant of actual growth

Whether you think you can or you can't do it, you're right.

Henry Ford

After introducing the concept of growth aspiration, we will investigate its determinants. Furthermore, we will have a look at different levels of growth aspiration across countries. Then, a first hypothesis will be formulated. The chapter ends with a finding from another study that might support our hypothesis.

3.1.1 Definitions and determinants of growth aspiration

Growth aspiration has been synonymously used in the literature with the following concepts: growth motivation, growth intention, growth expectation, propensity to grow or willingness to grow (Nummela, Puumalainen & Saarenketo, 2005).

Growth aspiration is investigated in the literature always within the scope of a growth model, as a growth determinant. In their growth model presented in chapter 2.3.2, Sexton and Bowman-Upton (1991, p. 69) define propensity to grow as “a desire to build the organization from its current position into one that is substantially larger”.

Most often in the literature, growth aspiration is used in the context of the theory of planned behaviour, playing the role of the intention (Bagozzi & Baumgarten, 1989; Liao et al., 2001, Wiklund & Shepherd, 2003; Delmar & Wiklund, 2003; Krueger & Carsrud, 2010). The theory of planned behaviour defines intentions as “assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert in order to perform the behaviour. As a general rule, the stronger the intention to engage in a behaviour, the more likely should be its performance” (Ajzen, 1991). Analogously, we define growth intention or growth aspiration as the willingness of the entrepreneur to pursue growth and expand the business.

It was shown that growth aspiration is directly influenced by personal and psychological traits of the individual (Ajzen, 1991; Davidsson, 1989, 1991; Kolvereid, 1992; Sexton & Bowman-Upton, 1986).

Similar to intentions (see chapter 2.2.3), we expect also growth aspirations to be indirectly influenced by societal and cultural norms about entrepreneurship and venture growth (cf. Ajzen, 1991; Mueller & Thomas, 2000).

When trying to explain different levels of growth aspiration between entrepreneurs from the same country, researchers looked at personal and psychological traits of the individual person (Davidsson, 1989, 1991; Kolvereid, 1992).

Davidsson (1989, 1991) found out that growth willingness of Swedish entrepreneurs is positively influenced by personality traits such as: perceived ability (internal locus of control, self-confidence, optimism), perceived need (need of achievement, satisfaction with profitability and personal economic outcome), and perceived opportunity (judgments about the future development of the industry, the financial strength of the firm, and accessibility of needed resources) of the entrepreneur. Kolvereid (1992) looked at Norwegian new owner-managers and showed that education positively impacts growth aspiration.

Researchers have not directly studied the relation between national cultural norms and growth aspiration, but few did look at the relation between dimensions of culture and some of the personal traits that influence growth aspiration. For example, Mueller and Thomas (2000) found that cultures high in Hofstede's dimension of individualism are correlated with higher internal locus of control. Moreover, cultures high in individualism and low in uncertainty avoidance have the highest entrepreneurial orientation (innovativeness and internal locus of control).

Since cultural dimensions were found to influence personality traits that determine growth aspiration, it might seem plausible to try to explain international differences between levels of growth aspirations – that will be showed below by the Global Entrepreneurship Monitor – with the help of cultural dimensions.

Still, that might not be an easy task. Researchers observe that the relationships between cultural values, social institutions, and behavioral outcomes such as entrepreneurship are complex and endogenous (e.g., Davidsson, 1995; Herbig, 1994); that is, social institutions and behaviors reflect and reinforce a culture's values.

3.1.2 Growth aspirations in international comparison

Growth expectations have been investigated intensively by the Global Entrepreneurship Monitor (GEM) and its co-operator, Erkkko Autio (2005, 2007). The GEM labels entrepreneurs with high growth aspiration as belonging to high expectation entrepreneurship and offers an international comparison of growth aspirations.

New ventures with high growth aspiration are defined as those who expect to employ 20 or more employees in five years' time. Medium growth aspirations are considered those from 5 to 19 new employees in the next 5 years, and low growth aspirations those under 5 employees. The combined GEM datasets for the years 2008 to 2010 conclude that high growth aspiration is rare: 9 percent of all new ventures' founders-managers have high growth expectation for their new ventures. In the world, the USA has the highest rates of growth aspiration in the world, while the large EU countries have the lowest. Inside the large EU countries, United Kingdom and Germany have the highest growth aspiration, and Spain the lowest ones.

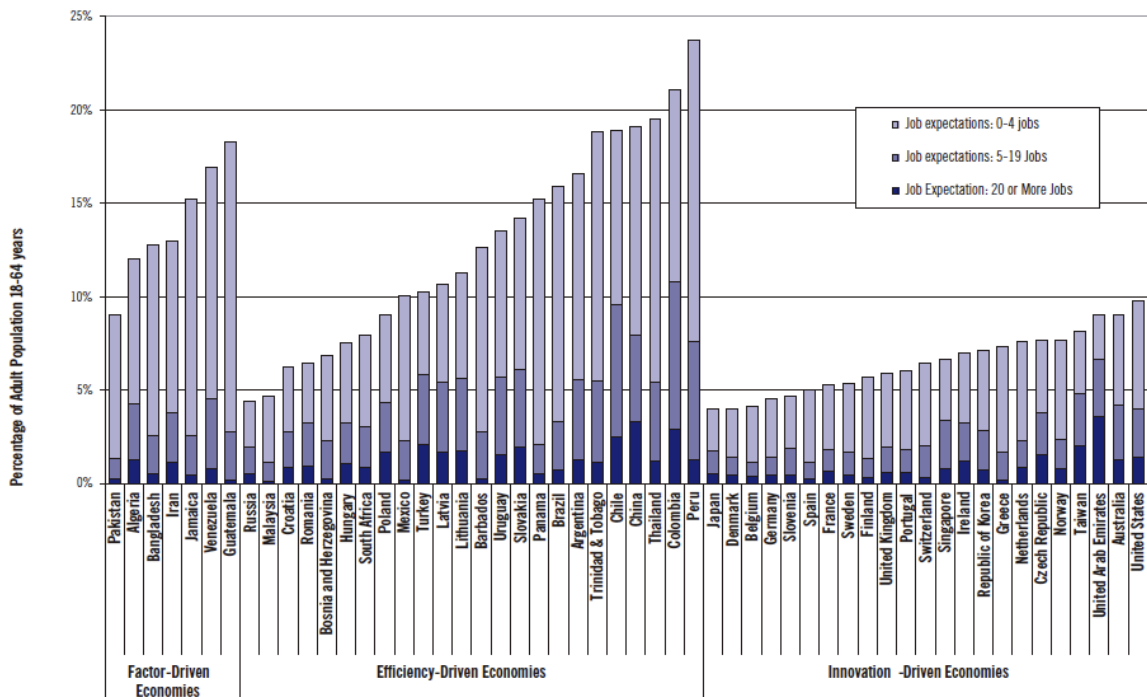


Figure 3.1.1. Growth expectation in 53 economies, by phase of development, 2009-2011

Source: GEM Global Report 2011

The World Economic Forum defines factor-driven economies as dominated by subsistence agriculture and extraction businesses, with a heavy reliance on labor and natural resources. In the efficiency-driven economies, further development is accompanied by industrialization and an increased reliance on economies of scale, with capital-intensive large organizations more dominant. The most developed economies are under the innovation-driven group, where businesses are more knowledge intensive, and the service sector expands (GEM Global Report, 2010).

As we can see in the graph above, the factor-driven economies have many entrepreneurs, but mostly in the low growth expectation category.

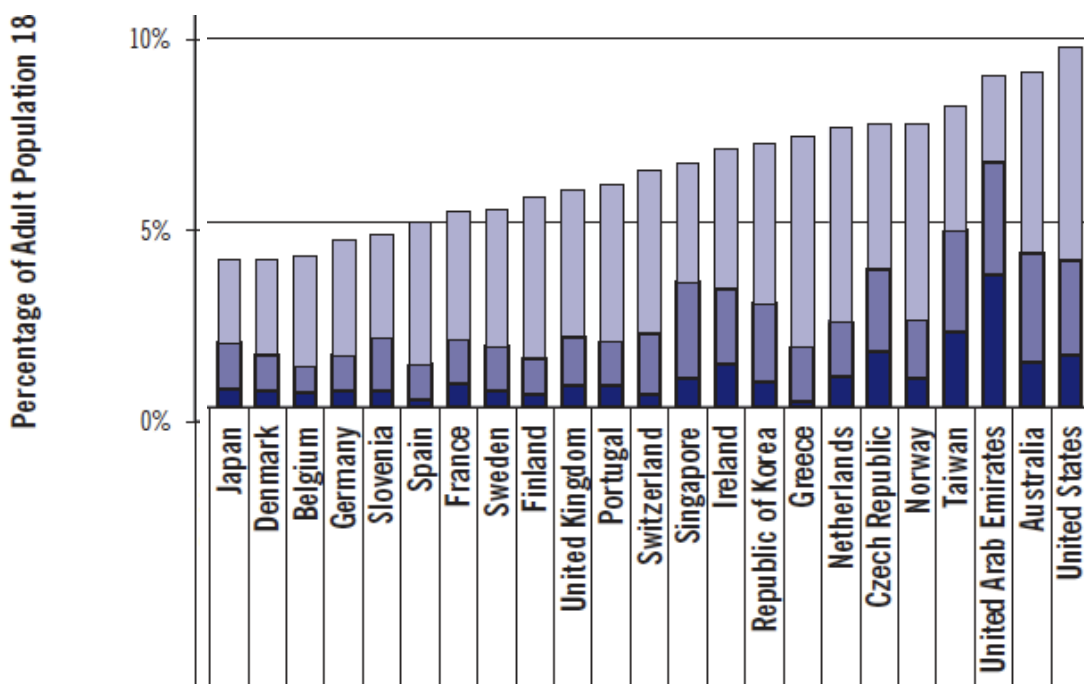


Figure 3.1.2 Growth expectation in innovation-driven economies, 2009-2011

Source: GEM Global Report 2011

The innovation-driven economies report consistently fewer entrepreneurs, and also not that many entrepreneurs with high growth ambitions. Still, there are these few new ventures with high growth ambitions that contribute a lot to the employment growth in the respective economies (GEM Global Report, 2011).

It is observable from figure 3.1.2 that, when compared with the USA, Australia or developed countries in Asia, large European countries like the United Kingdom, France, Germany or Spain have low ratios of all three growth aspiration types of entrepreneurs. There are the smaller competitive European countries like Norway, Netherlands or

Ireland who have a better position.

Even among the large European countries, Germany has the lowest levels of low and moderated growth expectation new ventures, and only economically-troubled Spain has a worse position when looking at the high growth expectation entrepreneurs.

3.1.3 Hypothesis representation

When trying to predict growth, the entrepreneurship literature pointed at the intention of the founder as one of the main determinants. Some previous researches did find a direct positive relationship between growth aspiration and growth (Baum et al., 2001; Wiklund and Shepherd, 2003). Based on the model presented in chapter 2.3.3, this work will test the following hypothesis:

Hypothesis 1: Small ventures managed by entrepreneurs with higher growth aspirations achieve greater growth.

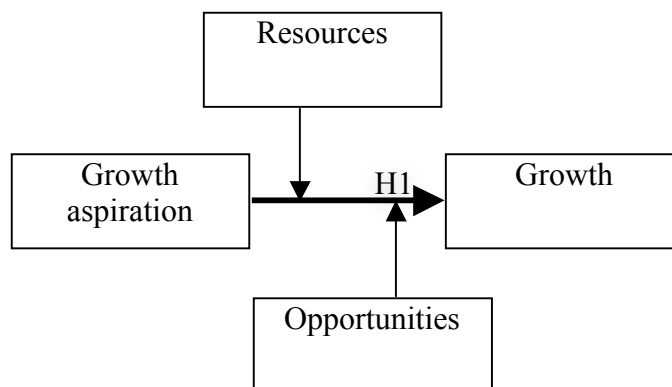


Figure 3.1.3 Hypothesis 1 of this work, in the frame of the moderated intentional model of growth

Source: own representation based on Ajzen's theory of planned behaviour (1991) and on Covin and Slevin's model of growth (1997)

Anyhow, we have to specify that the effect of growth aspiration on growth is not expected to be very large, since the strength of the relationship is influenced by the individual's degree of volitional control, that is the ability to perform the behaviour at

will. Growth can be regarded as a complex task, characterized by multiple ways of attaining the desired result (Delmar & Wiklund, 2008). Past studies found support for a positive relationship between growth motivation and growth (e.g., Baum et al., 2001; Bellu & Sherman, 1995; Kolvereid & Bullvag, 1996; Mok & Van den Tillaart, 1990), but the relations were not very strong, when compared to the findings for less complex behaviours under greater volitional control. (see Armitage & Conner, 2001; Delmar & Wiklund, 2008).

Next, we will introduce another finding from the literature that might support our hypothesis.

As it was shown in chapter 2.2, the entrepreneurship research has long focused on the founder and on his influence on venture success. Especially in the case of new and small ventures, the founder's intentions determine the form and direction of the organization as well as its subsequent success and development (Bird, 1988; Naffziger et al., 1994). It was highlighted that the founder's goals and situational-specific motivation like growth aspiration prompt entrepreneurs to invest higher levels of energy and effort into new ventures, which eventually lead to new venture success (Baum & Locke, 2004). It was also found that entrepreneurs with high motivation will shape the organizational structure and processes to reflect their goal (Baum & Locke, 2004). However, literature has neglected the importance that employees have in new venture performance and the potential impact of the entrepreneur's growth aspirations on employees' motivation and behaviour.

In their study of 2009, Cardon, Wincent, Singh and Drnovsek investigate entrepreneurial passion. According to their definition, passion involves feelings focused upon three primary role identities that are relevant in entrepreneurship, that of inventing, founding, and developing. Consequently, they differentiate three types for entrepreneurial passion: passion for *inventing* – the entrepreneur's passion for new market opportunities, for developing new products and prototypes; passion for *founding* – the passion for assembling necessary resources for commercializing and exploiting opportunities; and passion for *developing*. The passion for developing is associated with the wish to develop new markets and expand the size of the venture, to nurture, grow and expand the venture after its foundation (Cardon, Stevens & Gregoire, 2009). This passion for developing is obviously related to growth aspiration, which as well stands for the wish and intention to expand the venture (Sexton & Bowman-Upton, 1991).

Interestingly, in a brand new study of January 2012, Breugst, Domurath, Patzelt and Klaukien (2012) continue this line of research and find out that the positive affect and goal clarity of a passionate founder influences employee's active commitment to the venture, but not in the case of all passion types. They find that the passion of the founder for founding has a negative influence on employee's positive affect and thus an indirect negative influence on their affective commitment to the venture. Furthermore, the passion for inventing has a positive influence in employee's positive affect at work and thus on their active commitment. Lastly, the passion for developing has a positive influence on both the positive affect at work and on goal clarity and therefore an indirect positive effect on the employee's commitment. Actually, the coefficients for the relationship between founder's perceived passion for developing and employee's positive affect and goal clarity were twice as large as the coefficients for the relationship between perceived passion for inventing or founding and employee's positive affect and goal clarity. This shows that employees might be more responsive to the founder's passion for developing than for inventing and founding, because they identify it as more durable and more related to the well-being of the current venture (Breugst et al., 2012).

From this we can infer that also a higher growth aspiration of the founder positively influences the employee's positive affect towards the venture, their goal clarity and commitment, which in turn is very probable to lead to higher job performance of the employees targeted towards growth and therefore to higher growth of the venture.

3.2 Impact of moderators

In this chapter, we will introduce and describe the moderators for the growth aspiration-growth relation: resource availability and technological change and argue why we chose them. Hypotheses therefore will be formulated.

The study of entrepreneurship growth has been systematically concerned with the resources and opportunities the entrepreneur finds or has at his or her disposal (Kirzner, 1979; Shane & Venkataraman, 2000; Venkataraman, 1997). Together with the aspiration of the entrepreneur, the available resources and the opportunities are crucial to the growth of the business (cf. Covin & Slevin, 1997).

There are moderators that noticeably strengthen or weaken the relationship between growth aspiration and growth. In chapter 2.3.3 we introduced a moderated intentional model, which summarizes the theory of planned behaviour and Covin and Slevin's model of growth and looks at resources and opportunities as moderators. In an attempt to include both internal – organizational –, as well as external – environmental – moderators, we propose the resources availability and the technological change as moderators of the growth aspiration-growth relation.

Based on our moderated intentional model, the following figure depicts the two moderator-hypotheses we will formulate next.

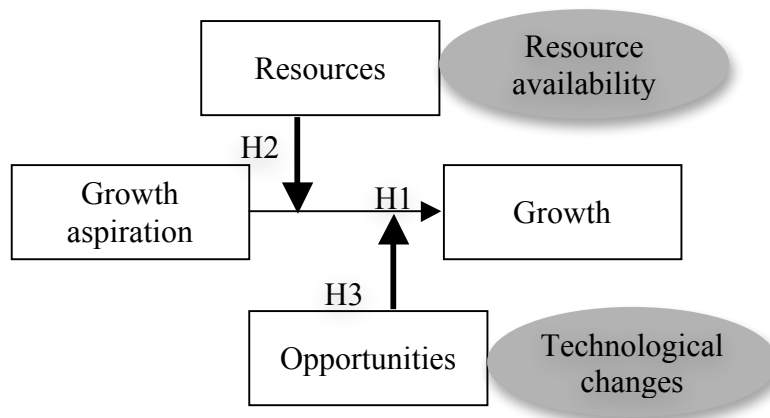


Figure 3.2.1 Hypotheses 2 and 3 of this work, in the frame of the moderated intentional model of growth

3.2.1 Resource availability

We would appreciate as many resources as we can get

Bennett King, Australian cricket trainer

In this chapter, we will define organizational resources, mention the resource-based approach to firm performance and classify different types of resources. Moreover, we will show an entrepreneurial approach to organizational resources. Finally, we will talk about the importance of resource availability for growth.

Organizational resources have been defined in different ways in the strategic

management literature, and the definition lies more often implicitly in the argument than explicitly in the text. According to Barney and Arikan (2001), “resources are the tangible and intangible assets firms use to conceive and implement their strategies“. Others define resources as strengths envisioned by the firm (Learned, Christensen, Andrews & Guth, 1969).

The resource-based approach (Barney, 1991) is the most influential framework when looking at the resources a firm possesses or needs. This approach, borrowed from strategic management, analyses the relation between internal resources of the firm and its performance. The basic assumption underlying the resource-based view is that resources are heterogeneous across companies and immobile. Undeniably, it is each organization’s capability to identify, acquire and combine resources that will eventually lead to performance. The resource-based view explains that not all of the firm’s resources have the potential of sustaining competitive advantage. For that, a resource must be: valuable, rare, imperfectly imitable and non-substitutable (Barney, 1991). To sum up, the resource-based view sees the firm as a set of resources and explains business growth through the availability of idle resources (Penrose, 1959).

There are many categorizations of organizational resources. Grant (2010, p. 127) classifies resources as tangible (financial and physical), intangible (technology, reputation, culture) and human (skills, know-how, motivation) and explains that these resources lead to organizational capabilities, which, in turn, together with industrial factors, lead to competitive advantage.

Table 3.2.1 Classification of organizational resources (Grant, 2011).

Tangible		Intangible			Human		
Physical	Financial	Technology	Culture	Networks	Skills	Know-how	Motivation

Source: own representation based on Grant (2011)

Among tangible resources, physical capital resources include the physical assets of the firm, a firm’s plant and equipment, its geographical location and its access to raw

materials (Barney, 1991). Financial capital resources are the funds from any sources used to start, operate and grow the business (Bygrave, 1992).

Second, intangible resources include: innovative technologies, patents or rights the firm possesses; organizational capital such as organizational relationship, members, channels of information and the organizational culture (Greene & Brown, 1997); and also social capital, such as networks and partner relationships.

Third, human capital resources consist of the training and intelligence, experience and know-how, and insight and motivation of individual managers and employees (Barney, 1991).

Within the new venture field, the most discussed are the human resources (Cooper, Gimeno-Gascon & Woo, 1994; Robinson & Sexton, 1994; Sanders & Nee, 1996), and the financial capital (Cooper et al., 1994), as well as networks (Aldrich & Zimmer, 1986; Dubini & Aldrich, 1991) and social capital (Fratoe, 1988; Sanders & Nee, 1996). Because new ventures are often also small (Birch, 1979), one of the main resources is the founders' team and the employees. They are the one looking for opportunities and acting upon them. But of course, financial capital is the "lifeblood of a venture" (Timmons & Spinelli, 2003). Financial capital was viewed as one of the most important type of resource, because it can be converted relatively easily into other types of resources (Dollinger, 1999). Networks and partner such as mentors, consultants, attorneys or accountants are also a valuable resource, adding value and know-how to the new venture.

The Harvard Business School researchers bring the resources controlled by the entrepreneur and his venture in the foreground of the analysis of entrepreneurship. These authors look at *the timing of resource commitment* and at the *control of resources* and differentiate on this basis the entrepreneurial from the administrative focus (Stevenson & Gumpert, 1985). While administrators or managers commit resources at a single stage, with complete commitment out of a decision, entrepreneurs commit the resources in many stages, with minimal exposure at each stage. The use of resources is staged to match critical milestones that signal whether it is worth to go on or change the strategy.

Entrepreneurs episodically use or rent the required resources. Rather than owning the resources they need, entrepreneurs seek to control them only (Stevenson, 1984;

Timmons & Spinelli, 2003). The flexibility gained through only using resources and not owning them allows the entrepreneurial venture to break through the limits of sustainable growth and lowers its risk, for it taps into someone else's experience and know-how (Jarillo, 2002). On the other hand, managers have ownership over the required resources. Fast growing firms were found to use more resources that they did not own, than their competitors (Jarillo, 2002).

Growth is a transformative process that requires numerous resources. Several studies have found out that resource availability is one of the factors that triggers new venture formation (Cross, 1981; Gartner, 1985) and growth (Castrogiovanni, 1991; Covin & Slevin, 1991; Vesper, 1980). Next, we will explain why the availability of resources can accelerate growth.

The combinations of different resources position new ventures on different developmental trajectories (Gilbert et al., 2006).

Resources are needed in order to look for and find opportunities. Companies pursue many ideas, but not all of them turn into opportunities with market potential (Sexton & Bowman-Upton, 1991). New ventures are engaged in a process of experimentation, whereby concepts are tested. The process of experimentation is characterized by iterations of trial and error, and absorbs resources (Garnsey, 1998).

Moreover, when ideas that really represent market opportunities are found, strategic initiatives are needed to realize the opportunity. Strategic initiatives do not only require resources, but the particular resources that the venture has influence the choice of strategy (Chandler & Hanks, 1994).

Once the strategic initiatives used to follow the growth opportunities are put into action with the help of resources, the new venture might start to grow. Then again, owner-managers have to obtain enough resources to accommodate that growth. Again, resource availability becomes the main entrepreneurial problem (Jarillo, 2002).

Lack of resources was seen as the most fundamental barrier to growth (Storey, 1994). Resources can be used for experimentation with new strategies and practices, allowing the business to pursue new growth opportunities (Penrose, 1959). The access to sufficient resources gives companies a broader range of strategic options (Romanelli, 1987) and allows the pursuit of more capital-intensive growth strategies, which are

better protected against imitation.

Moreover, the availability of resources does not only allow new ventures to pursue growth strategies, but also motivates entrepreneurs (Aldrich & Martinez, 2001). Brown (1996) found that the perception of resource availability has a positive impact on entrepreneurial orientation. The resources of the firm influence the perceptions of the business leader and thus the direction and speed of growth (Wernerfelt, 1984).

3.2.2 Technological changes

*We are all faced with a series of great opportunities
brilliantly disguised as impossible situations.*

Charles R. Swindoll, American writer and clergyman

We will start this chapter by looking at different dimensions of the environment of a venture and relating them to growth. Furthermore, we will introduce technological change and explain why it influences new firm growth.

New venture growth cannot be examined in isolation from the environment of the firm, from external constraints. Many theories about how organizations are affected by their environment have been put forward and empirically analyzed. It was shown that environments offer opportunities for new ventures and affect their performance (Bain, 1956; Caves et al., 1974; Porter, 1981; Scott, 1987).

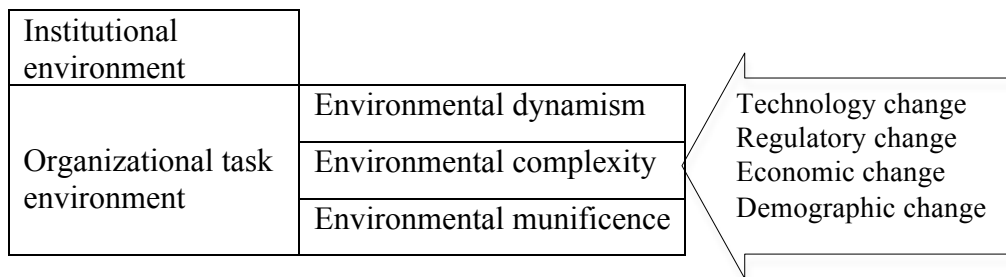
Institutional theory highlights two broad dimensions of an organization's environment that influence organizational forms and actions. First, the *institutional environment* refers to the normative, cultural, and regulatory structures that are shared widely among actors within an industry. Second, factors in the *organizational task environment* influence organizations as production systems, systems that transform inputs into outputs (Dill, 1958, p. 410; Scott, 2001, p. 133). This later concept emphasizes that most organizations are created to achieve goals and to perform some type of work. More importantly, it stresses that no organization is self-sufficient, but they all must enter into exchanges with the environment (Scot, 2011, p. 133). A further comparison of the two dimension of the organizational environment is presented in Appendix 1.

In this work, we are not focusing on regulatory structures and on the survival value of

conforming to them (Oliver, 1997). We will not consider the institutional environment, because we think that in the case on newly founded ventures, adhering to institutional rules and norms is not relevant for growth. For this thesis, the organizational task environment is more relevant, since it emphasizes the technical interdependence of organizations and environment, the scarcity of resources and the competitive pressures to be innovative and efficient (Dill, 1962; Pfeffer & Salancik, 1978).

The organizational task environment has three principal dimensions: dynamism, complexity and munificence (Aldrich, 1979; Dess & Beard, 1984). The impact of these three environmental dimensions has been studied in many contexts (e.g. Pfeffer & Salancik, 1978; Scott, 2001).

Table 3.2.2 Dimensions of an organization’s environment and their determinants



Source: own representation based on Aldrich (1979) and Scott (1992)

Environmental dynamism refers to the continuity of changes in a firm’s environment, arising from technological progress, competitive rivalry, regulatory developments, and similar forces (Miller & Friesen, 1984). Dynamism creates opportunities for a firm within its existing markets or in adjacent fields and also pressures companies to renew themselves through innovation (Zahra & Ellor 1993; Zahra, 1993).

Environmental complexity describes the degree of heterogeneity and the dispersion of an organization’s activities, actors, linkages and interactions outside its boundaries (Aldrich, 1979; Duncan, 1972; Starbuck, 1976; Scott, 1992). Complexity was found to increase uncertainty (Meyer & Scott, 1983) and the information processing requirements of managers (Duncan, 1972; Pennings, 1975).

Environmental munificence describes the extent to which an environment can support sustained growth (Starbuck, 1976). It reflects the richness of opportunities for corporate venturing and renewal in an industry (Aldrich, 1979). These opportunities arise from a “technological push,” where new advances stimulate new demand in existing or new markets (Scherer, 1980). The importance of new products is also a component of munificence, and represents the weight that an industry assigns to the value of new products for creating and retaining a competitive position (Zahra, 1993).

The degree of dynamism, complexity and munificence present in an environment are influenced by many factors, among others by the rates of technological, regulatory, economic and demographical change (Scott, 1992).

In this thesis we will focus on technological change as main determinants of environmental dynamism, complexity and munificence, because of its importance in the new venture field (Tushman & Anderson, 1986). Today’s business environment evolved into the technology and information age and this led to competition based on the mastery of new ideas and technologies. Technology seems to evolve as an answer to the interplay of history, individuals and market demand (Tushman & Anderson, 1986). Technological change, understood as “improvement in the instructions for mixing together raw materials” (Romer, 1990, p. S72), was recognized as the most important factor in long-run macroeconomic growth (Solow, 1957; Romer, 1990).

Technology change facilitates execution of innovative ideas and provides for more opportunities to be recognized by entrepreneurs. Innovation-oriented entrepreneurial behaviour belongs, together with growth-oriented behaviour, to the high-impact entrepreneurship (GEM, 2010).

Environmental dynamism is closely related to technology change: when the rate of technology change is higher, the environment is more dynamic (Miller & Friesen, 1984). Dynamism was found to positively influence the use of innovative strategies and firm performance (Paine & Anderson, 1977; Stearns, Hoffman & Heide, 1987). Thus, it seems that new ventures can grow more in dynamic environments.

Technological change was found to increase environmental complexity, as companies try to master a product or process that is not yet completely understood (Tushman & Anderson, 1986). It is not clear how complexity influence growth and performance (McArthur & Nystrom, 1991).

But most important, technological change brings about sharp decreases in the input-output ratio of the firms, stimulates demand (Solow, 1957) and is therefore associated with higher environmental munificence (Tushman & Anderson, 1986). Higher environmental munificence is, in turn, associated with higher growth rates of the firms operating in that environment (Starbuck, 1976). Technological change is therefore an important source of entrepreneurial opportunity and growth, because it makes it possible for people to allocate resources in different and potentially more productive ways (Casson, 1995).

New growth opportunities for new ventures arise out of changing market conditions, such as technological change. Technology change can offer opportunities in three ways: through innovation, that is through the invention of a new technology or product, through the development of existing technologies or products and through transfer of existing technology from other industries (Sexton & Bowman-Upton, 1991).

During the technology change, a window of opportunity is open and the alert-eyed companies can score by quickly re-arranging resources and bringing a new product to market (Sexton & Bowman-Upton, 1991). Once the technological change becomes common knowledge, the market for that opportunity becomes crowded and the window of opportunity closes.

Still, the mere existence of opportunities is not enough. Once the opportunity offered by the technological change has been identified, it has to be acted upon. Product ideas arise from the creation and recombination of technological ideas (Katila & Ahuja, 2002). Technological change fosters new product ideas and product diversity. Product diversity refers to the extent to which the new venture develops a large number of new products (Chen, Zu & Wag, 2009). The diversification of product lines can result from highly novel innovations where new categories of products are introduced or incremental innovations where features of existing products are improved (Amason, Shrader, & Tompson, 2006). Through either novel or incremental technological change, product diversity creates customer value and helps meeting differentiated customer needs, making the venture more competitive and leading it to greater sales and growth (Wally & Baum, 1994).

3.2.3 Hypothesis representation

In this chapter, we will introduce the two moderating hypotheses of this thesis: one regarding resource availability and the other technological change. But before that, we will offer some more arguments for why we think these two moderators influence the relationship between growth aspiration and growth.

As stated before, resource availability is of critical importance when the firm wants to successfully implement new ideas and support new initiatives (Fry, 1987; Hisrich & Peters, 1986; Kanter, 1988). It is probable that lack of resources would restrict a small business manager's opportunities to take action. Many small business managers experience shortages of financial or human capital that limit their ability to pursue various initiatives (McGrath, 2002). Those companies that have sufficient access to resources can perform certain intended activities, and the outcomes of these activities can then have positive performance implications (Davidsson et al., p.151). On the other hand, those firms that feel restricted to engage in such desired activities are more likely to perform worse.

The extent to which growth aspirations are achieved is expected to be affected by the amount of resources controlled or available to the firm and by the ease of getting new funds (Covin & Slevin, 1997). Resources may predispose ventures to certain paths or equip them with unequal abilities to meet challenges (Cooper et al., 1994).

The organization's resources determine the ability of that organization to support growth (Covin & Slevin, 1997). The growth aspirations of an organization's manager may be high, but realized sales may be abysmal, unless that organization possesses the resources needed to support growth strategies. Thus, organizational resources operate as a moderator of the relationship between desired and realized sales.

Thus:

Hypothesis 2: The impact of the growth aspiration of the small business manager on the growth realized by the new venture is stronger for new ventures with higher resource availability.

The growth of a new venture depends on the growth opportunities available in that environment. Technology drive was identified as a characteristic of the environment in which firms achieve growth (Dsouza, 1990). Changes in the technological environment can offer new growth possibilities for small and new firms (Drucker, 1985). Technological changes alter the competitive environment, as they reward those innovative firms that are first to recognize and exploit technological opportunities. The superiority of a new technology presents organizations with a clear choice: adapt or face decline. Those firms that are among the first to adopt the new product or process are ahead on the learning curve than those that follow (Tushman & Anderson, 1986).

The shifts in demand and conditions created in an industry with high technological change rate generate opportunities from which growth oriented firms can benefit (Chandler & Hanks, 1994; Covin & Sevin, 1991; Zahra, 1993). On the other hand, firms that do not have growth in focus are less alert to opportunities in the changing technologic environment and will thus profit less, and even face negative growth in such environments (Wiklund & Shepherd, 2003). This supports us in formulating the third and last hypothesis of this work:

Hypothesis 3: The impact of the growth aspiration of the small business manager on the growth realized by the new venture is stronger for new ventures operating in environments with higher rate of technological change.

4. Method

In this chapter, we will start by presenting the design of our research and the way in which we collected the data. Then, the variables and their measures will be presented including dependent, independent, moderating and control variables.

4.1 Research design and data collection

The population of interest was defined as newly founded German ventures younger than 10 years. As noted by Markman, Baron and Balkin (2005), the task of defining which ventures can still be considered newly founded and which not, as well as identifying a suitable sample, is a methodological challenge in entrepreneurship research. After discussion with experts in the field of entrepreneurship and organization, we decided that the 10 years limit is the most appropriate for the study of entrepreneurial growth. Such a sample is likely to contain both very young start-ups, and ventures that already passed the survival test of the first years. Such a combination will be most likely to offer interesting insight on the growth of newly founded ventures.

The survey questions were put together after an in-depth review of the relevant available literature. Furthermore, the survey was pre-tested by requesting comments from researchers very familiar with the topic of new venture growth.

The data was collected between July and September 2011 and the data gathering was made in the following way: possible candidate companies were randomly selected from the homepages of German incubators. A telephone call followed, where the founders of the new ventures were identified and asked to participate in the survey. The initial phone call was made since this method of contact bears a higher response rate than the sole sending of an e-mail containing the link to the survey (Brush & Vanderwerf, 1992, p. 157).

The founder, which often performed also the CEO function, was chosen as the source of information because of the experience with the whole founding process and the high involvement within the new business (Brush & Vanderwerf, 1992, p. 159; Lechner, Dowling & Welp, 2006, p. 525). After agreeing to participate in the survey, the founders received a link via e-mail forwarding them to the online questionnaire page. The online questionnaire could have been filled out at any convenient time. It

constitutes a self-report survey where founders were asked to fill in the required information for the data collection (Brush & Vanderwerf, 1992, p. 159). The advantages of the online questionnaire are flexibility, availability at all times and easy accessibility from every location (Ilieva, Baron & Healey, 2002, p. 363). It bears lower costs and the responses are faster available compared to traditional mail surveys (Deutskens, Ruyter & Wetzels, 2006, p. 346). The average time to fill out the survey was 25 minutes and it contained questions about the person of the founder, the company itself, the entrepreneurial and growth orientation, the new venture networks and network success, and about the new venture success.

There were no monetary or material incentives given for the founders to participate. Instead, given that they provided their email address, they would receive a summary of the study results at the end of the process. 408 founders accessed the questionnaire by opening the link and thereof, 137 founders of different new ventures completed it. That gives a response rate of 33,6%. Out of these 137 founders, 83 founders, meaning 60,6%, accepted to reveal the name and e-mail address of their companies, and received therefore the summary of the results.

The quality of the sample is of major significance. False values or outliers that diverge massively from the overall pattern can massively influence the estimators (Han & Kamber, 2006; Kübart, Grimmer & Hipp, 2005, p. 22). The implausibility of outliers can be detected with the help of researchers' knowledge and deeper analysis of the topic in question (Lück, 2011, p. 67). Before analyzing the data, the quality of the answers was examined, in order to determine missing and false values. Outliers were detected e.g. in sales growth aspiration. Seven data sets were excluded, having been considered too imprecise or unrealistic. These data sets were excluded from the final sample because of their bias power when analyzing the data (Lück, 2011, p. 80). Reasons for the occurrence of outliers can be a false interpretation of the question or a false answer consciously given in order to improve the own results (Lück, 2011, p. 76).

Moreover, data sets with no relevance for our investigation were not included in the final set, e.g. four new ventures that were operating since less than one year were not considered, because of lacking complete year sales figure.

4.2 Variables and measures

In this work the values of all variables and measures were self-reported by the founder and/or CEO of the new ventures. The reliability and validity of self-reported measures have received support in past research (Brush & Vanderwerf, 1992; Lechner et al., 2006). An overview of the relevant dependent and explanatory variables and their operationalizations is given in table 4.2.1.

Table 4.2.1 Variables and operationalizations

Variables	Operationalizations
Sales growth	Approximately how many percentages has your 2010 revenue grown compared to 2007? [from 1= „less than 0% (decline in sales) to 8= over 200%]
Growth aspiration	Formative index, formed by combining the future ideal increase in sales and the future ideal increase in the number of employees. The two percentages were calculated with the help of the following four questions: <ul style="list-style-type: none"> • If the firm develops the way you would like it to, how much sales would the firm have 5 years ahead? [Metric, in Euros] • What was your company’s revenue in 2010 approximately? [from 1=0 to 10T., to 11=over 10 mil.] Middle of the interval considered • If the firm develops the way you would like it to, how many employees would the firm have 5 years ahead? [Metric] • Excluding your founder(s), how many employees had your company by the end of 2010? [Metric]
Resource availability	Index formed by combing following questions: <ul style="list-style-type: none"> • This firm has uncommitted resources that can quickly be used to fund new initiatives. [Likert scale from 1 = completely false to 7 = completely true] • This firm has few resources available in the short run to fund its initiatives. (Reverse scored) [Likert scale from 1=completely false to 7=completely true] • We are able to obtain resources at short notice to support new strategic initiatives. [Likert scale from 1 = completely false to 7 = completely true] • We have substantial resources at the discretion of management for funding strategic initiatives. [Likert scale from 1 = completely false to 7 = completely true]
Rate of technological change	Index formed by combing following questions: <ul style="list-style-type: none"> • The technology in our industry is changing rapidly. [Likert scale from 1 = completely false to 7 = completely true] • Technological changes provide big opportunities in our industry. [Likert scale from 1 = completely false to 7 = completely true] • A large number of new product ideas have been made possible through technological breakthroughs in our industry. [Likert scale from 1 = completely false to 7 = completely true]
Business size	Excluding your founder(s), how many employees had your company by the end of 2010? [Metric]

Business age	For how many years has your company been an operating business? [Metric, in years]
Respondent's age	How old are you? [Metric, in years]
Prior founding experience	How much experience in founding a business have you had before founding your current venture? [Likert scale from 1 = no founding experience to 7 = extensive founding experience]
Prior industry experience	How many years of experience have you had in the industry your company is active in before you founded the venture? [Metric: years]
Education	What is your highest school /educational qualification? [Recoded into years of study]
Network size	How many external partners does your company currently have? [Metric]
High technology industry	In which industry is your company active? [Dummy variable, 1 for high-technology industries, 0 for low-technology industries]

The dependent variable – Growth

Sales measures are the most widely used in empirical growth research (Delmar, 1997). Regarding the suitability of sales as a growth indicator, consensus has been reached among academics that sales growth is the best growth measure (Delmar, 1997; Delmar, Davidsson, & Gartner, 2003; Hoy et al., 1992; Weinzimmer, Nystrom, & Freeman, 1998). Sales reflect both short- and long-term changes of the firm, and are easily obtainable for academic purposes. Moreover, it seems that sales growth is the most common performance indicator among entrepreneurs themselves (Barkham, Gudgin, Hart & Hanvey, 1996; Hoy et al., 1992). The growth process itself is likely to be driven by increased demand for the company's products or services. This means that sales will first increase and will then allow the acquisition of additional resources (Flamholtz, 1986). It is unlikely that growth in other dimensions can take place without a growth in sales (Davidsson & Wiklund, 2000).

Moreover, other indicators of growth have some evident disadvantages that limit their applicability outside of special contexts. For example, employment is affected by labor productivity increases, machine-for-man substitution, degree of integration, as well as by make-or-buy and outsourcing decisions (Delmar et al., 2003). Moreover, growth indicators such as market share and physical output can only be compared within the same industries, for companies with similar product ranges. Using an indicator such as total asset value is highly dependent on the capital intensity of the industry and sensitive to changes over time (Delmar et al., 2003). And, while profits are an important indicator

of success, the relationship of profits to growth is only evident over long periods for individual firms (Delmar et al., 2003). In the case of new ventures, profits are negative or zero for many years, even if the company is growing.

Sales growth is represented as the relative change in sales from 2007 to 2010. The respondents were asked how many percentages has the revenue of 2010 grown, compared to that of 2007. The answers were registered into a 1 to 8 scale from less than 0 percent to more than 200 percent growth (Lee & Tsang, 2001).

The independent variable – Growth aspiration

In order to measure growth aspiration, respondents were asked to report the ideal size of the business in five years in terms of sales and of number employees: “If the firm develops the way you would like it to, how large turnover/ how many employees would the firm have 5 years ahead?” These responses and the 2010 figures for actual sales and employees were used to calculate ideal growth rates of sales and of employees. This two ideal growth rates reflect the concept of growth aspiration, and were combined into an index. Growth aspiration is a concept that refers to the general aspiration for growth and does not differentiate between aspiration for employee growth or for sales growth (Wiklund & Shepherd, 2003). It should be noted that the two indicators are formative, meaning that the construct of growth aspiration is an effect of its indicators. This is not a case of reflective indicators where the underlying construct causes the empirical observations (Wiklund & Shepherd, 2003; Wold & Jöreskog, 1982). Therefore, the reliability analysis made in the case of reflective indicators is not suitable here and offers no relevant information.

In order to establish construct validity, we followed the guidelines provided by Robinson, Shaver and Wrightsman (1991). Convergent validity was established by correlating our index with another index aimed at measuring perceived growth opportunities consisting of two items with a Cronbach’s Alpha value of 0,81. The correlation between the two indices was high enough, 0,30, as advised by Cohen & Cohen (1983).

Two other possible measures of the independent variable were also available (cf. Wiklund & Shepherd, 2003): whether a 25 percent/ 100 percent increase in the number of employees in five years time would be mainly negative or mainly positive. These alternative measures of the independent variable were not used because they did not seem reliable; in cases of extreme growth aspiration, individuals would score higher on the 100 per cent than on the 25 per cent increase item (24 percent of the sample).

Growth aspiration as a stable phenomenon

In this work, we empirically test the hypothesis that growth aspiration influences growth on a cross-sectional data set of newly founded German firms using hierarchical regression, at one specific point in time. In order to be able to formulate the first hypothesis of this paper (H1: Small ventures managed by entrepreneurs with higher growth aspirations achieve higher growth), it has to be shown that growth aspiration has some stability over time, since our study is not a longitudinal one, but a cross-sectional one made at one specific point in time.

Growth aspiration is an intention targeted towards the growth of the venture from the present point onward (Sexton and Bowman-Upton, 1991, p. 69). It can be assumed that past growth aspiration influenced the present actual growth and that the present growth aspiration will influence the future actual growth. But in order to test that, we would need to conduct a longitudinal study over more years. If we can prove that growth aspiration stays more or less stable over time, we could assume that the growth aspiration of today is more or less the same as the growth aspiration of the past. That would allow us to formulate Hypothesis 1 and test it in a cross-sectional study at one point in time.

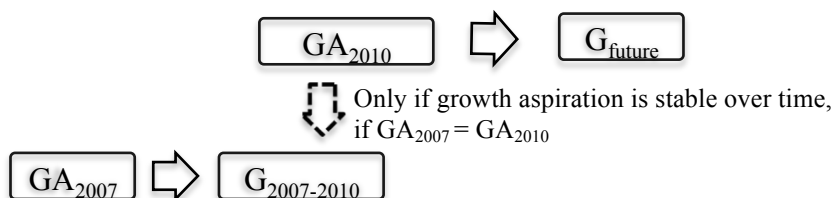


Figure 4.2.1 Assumed relation between growth aspiration (GA) and growth (G) over time.

Source: own representation

In order to be able to test the central hypothesis of this paper, we first need to show that growth aspiration is a stable phenomenon; otherwise growth aspiration and growth cannot be investigated at the same point in time as in the present empirical work.

Nummela et al. (2005) define growth aspiration as an “attitudinal concept, based on subjective evaluation”. An attitude is "the relatively stable overt behaviour of a person which affects his status" (Bain, 1928). This might be one first pointer that growth aspiration is a stable phenomenon. The next and clearer argument is that growth intentions have proven remarkably stable over time (Delmar & Wiklund, 2008; Kollvereid & Bullvag, 1996). Delmar and Wiklund (2008), basing on Ajzen (1995), argue that in the relation between growth aspiration and growth, unless aspiration remains relatively constant over time, prediction of growth will be weak. Only if a high growth aspiration stays constant can high real growth be predicted and only if a low growth orientation stays constant will a low actual growth be predicted. If a high growth aspiration becomes low or vice-versa, the prediction link would not hold. The literature offers findings that show a positive relationship between growth aspiration and growth (Kollvereid & Bullvag, 1996; Baum et al., 2001; Wiklund & Shepherd, 2003). This makes growth aspiration stable over time, allowing us to formulate and test Hypothesis 1 of this work.

The moderators – Resource availability

Four questions were used to obtain data on resource availability (cf. Brown, 1996; Brown & Kirchhoff, 1997): whether the firm has uncommitted resources that can quickly be used to fund new initiatives; the same question in reversed score; whether the company is able to obtain resources at short notice to support new strategic initiatives and whether it has substantial resources at the discretion of management for funding strategic initiatives. The four questions have the role to touch upon more aspects of resource availability such as: have vs. be able to obtain resources; own vs. control resources; low vs. high discretion of management over resources; resources to support new ideas vs. support new strategic initiatives.

A seven-point scale, ranging from completely false to completely true was used to measure these items. From these four items, an index was build as the arithmetic mean. The’s alpha value of the index is 0,88 and corrected item-total correlations range from

0,85 to 0,90 indicating that the index has good reliability (Nunnally, 1967) and that all items share sufficient variance with the index (Nunnally & Bernstein, 1994).

The moderators – Technology change

The variables measuring technological change were chosen after Miller's (1987) items about change in technology and rate of innovation. The questions were: "the technology in our industry is changing rapidly"; "technological changes provide big opportunities in our industry", "a large number of new product ideas have been made possible through technological breakthroughs in our industry" (Zahra, 1996). The three questions relate to more aspects of technology change: change in technology per se, new opportunities, new product introductions.

A seven-point scale ranging from completely false to completely true was used to measure these items. These three items were transformed into an index calculated as the arithmetic mean. The Cronbach's alpha of the index is 0,78 and corrected item-total correlations range from 0,82 to 0,86, indicating that the index has good reliability (Nunnally, 1967).

Control variables

Several control variables that might affect the growth aspiration of the founder, the resource availability, rate of technological change or sales growth were considered. Business size, business age, as well as the age of the small business manager have been frequently investigated in previous research as determinants of growth (Davidsson, 1989; Delmar, 1996, 1997; Delmar & Wiklund 2008; Wiklund & Shepherd, 2003; Wiklund, 1998). Therefore, they were included as control variables.

Business size in form of the number of employees and *business age* were the first variables controlled for, since it has been shown that both correlated negatively with growth (Cooper, Woo & Dunkelberg, 1989; Davidsson, 1989; Evans 1987; Simyar, Doutriaux & Argheyd, 1988). An explanation for that might be that the older the firm, the more it has proven to be viable in what it is doing and the bigger it is, the more likely that profits are big enough to satisfy the owner (Davidsson, 1991). Almus and

Nerlinger (1999) argue that small and young firms grow more because they need to rapidly achieve the minimum efficient size.

Furthermore, we controlled for the *respondent's age*, since it was shown that it tends to negatively correlate with growth (cf. Boswell, 1972; Dunkelberg & Cooper, 1982; Wärneryd, 1988). The older an individual is, the more likely is it that he does not need additional income for e.g. mortgages (Davidsson, 1991). Moreover, an older owner-manager is more likely to have reached his or her aspirations or to have adjusted them to the current situation of the company (Davidsson, 1991).

We controlled also for *prior self-employment experience*, as an important human capital type the founder might possess when it comes to new venture success. It is expected that experience in prior start-ups has a positive relationship with growth and with resource availability (Chambers, Hart & Denison, 1988; Stuart & Abetti, 1988). Prior entrepreneurial experience influences the amount of knowledge and information possessed to be able to grow the business, and it also helps having realistic growth aspirations that will eventually be achieved. We asked the respondent to state how much experience in founding a business did he or she have before founding the current venture. Answers were registered on a 7-point Likert scale, from “no founding experience” to “extensive founding experience” (Honig, Lerner & Raban, 2006).

Moreover, we controlled for the *prior industry experience* of the founder, since previous studies found a positive relationship to both survival and growth (Brush & Hirsrich, 1988; Dyke, Fischer & Reuber, 1992; Van de Ven et al., 1984; Vesper, 1980). Industry experience was measured by the number of years of experience the founder had in the industry the current venture is active in, before founding the current venture.

We also controlled for the *education* of the founders, as an important type of human capital intensively studied in connection to growth (Bailey, 1986; Brush & Hirsrich, 1988; Collins & Moore, 1970; Cooper & Dunkelberg, 1987; Kolvereid, 1992; Stuart & Abetti, 1988). Findings show that educated individuals are more likely to run faster-growing small businesses than those who are less educated (Sapienza & Grimm, 1997; Storey, 1994). Respondents were asked to state their highest level of completed education. This variable was then recoded into years of education.

The existence of partners provides the newly founded venture with more diverse skills and resources and helps its development and growth (Lee & Tsang, 2001). *Network size* was positively related to profitability (Aldrich, Rosen & Woodward, 1987) and to venture growth (Dyke et al., 1992; Lee & Tsang, 2001). Therefore, we included it as a control variable. The respondents were asked how many external partners do they have.

To account for the fact that companies operating in different industries differ in respect to their possible growth rates (Almus & Nerlinger, 1999) and growth aspirations (Liao & Welsch, 2003), we also included a dummy variable indicating whether the new venture is operating in a *high-technology industry* (e.g. information, communication, life sciences) or a relatively low-technology industry (e.g. construction, food, education, financial services). In deciding that, we guided ourselves after Rosenkopf and Schilling (2007), who provide extensive criteria for differentiating high- from low-technology industries.

5. Results and analysis

In chapter 5, we start by presenting our statistical analytical approach. Then, we present the results of the regression analysis and end with an extensive discussion of the results for each of the three hypotheses formulated.

Analytical approach

The hypotheses were tested using a moderated hierarchical regression analysis approach (Cohen & Cohen, 1983). Moderation suggests that the relationship between two variables varies as a function of the value of a third variable (Zedeck, 1971). An interaction effect exists only if the interaction term contributes to the variance explained in the dependent variable over the main effects of the independent variable (Jaccard & Turisi, 2003).

The independent variables were mean-centred and standardized prior to the formation of the interaction terms as recommended by Aiken and West (1991). The interaction terms were formed by multiplying the measure for growth aspiration with the measures for resources and opportunities. When computing the regression, we first entered the control variables (model 1), then we tested the isolated effects of the independent variables (model 2). In a third step, we included the interaction terms (model 3).

5.1 Results

The correlations and descriptive statistics for the non-categorical variables are presented in Table I. Relatively low intercorrelations between independent variables indicate that multicollinearity should not be a major problem. To further ensure that multicollinearity was not an issue, multicollinearity diagnosis was applied. The calculation of the variance inflation factor (VIF) finds that the values of all first order terms are below 1,9, which is well below critical values (cf. Hair, Anderson, Tatham & Black, 1998). Individual figures are reported in Appendix 2.

Table 5.1.1 Means, standard deviations and Pearson's correlations

<i>n=133</i>	<i>Mean</i>	<i>S.D.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1. Sales growth	4,92	2,19						
2. Business size	4,84	8,42	0,17					
3. Business age	4,37	2,72	-0,20*	0,15				
4. Respondent's age	41,67	8,32	-0,22*	-0,03	0,30**			
5. Start-up experience	2,83	2,10	0,11	-0,15	-0,13	0,07		
6. Industry experience	9,30	7,16	-0,10	-0,02	0,01	0,59**	0,05	
7. Education	17,50	2,66	0,08	0,17	0,13	0,13	-0,06	-0,03
8. Network size	7,59	14,72	-0,07	-0,07	0,07	-0,00	-0,04	0,11
9. High-technology industry			0,03	-0,08	-0,10	-0,12	-0,03	-0,08
10. Growth aspiration			0,01	-0,17	-0,37	-0,17	-0,03	-0,09
11. Resource availability	3,58	1,51	0,01	0,11	0,01	-0,03	0,13	-0,01
12. Technological change	4,74	1,59	0,23**	0,08	-0,05	-0,10	0,05	-0,05
13. Aspiration * Resource availability			-0,20*	-0,04	-0,04	-0,15	0,11	-0,14
14. Aspiration * Technological change			0,19**	-0,04	-0,00	-0,09	0,17	0,10

** Correlation is significant at the 0,01 level (2-tailed)

* Correlation is significant at the 0,05 level (2-tailed)

Table 5.1.1 Means, Standard Deviations and Pearson's Correlations (Contd.)

<i>n=133</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
1. Sales growth							
2. Business size							
3. Business age							
4. Respondent's age							
5. Start-up experience							
6. Industry experience							
7. Education							
8. Network size							
9. High-technology industry	-0,01	-0,03					
10. Growth aspiration	0,05	0,03	-0,11				
11. Resource availability	0,07	-0,15	0,00	0,04			
12. Technological change	0,17	-0,13	0,17	0,05	0,10		
13. Aspiration * Resource availability	-0,03	-0,04	0,01	0,31**	0,10	-0,07	
14. Aspiration * Technological change	0,02	0,06	-0,05	0,01	-0,11	-0,07	-0,16

** Correlation is significant at the 0,01 level (2-tailed)

* Correlation is significant at the 0,05 level (2-tailed)

Next, we will report some of the sample's characteristics. The sample consists of 15% of women and 85% men at an average age of 42 years (s.d. 8,3). 77% of the sample had university studies or more. The average venture had been in business for four years, had average annual sales of 187.500 € and an average of 4,8 employees. The sample covers a wide range of business areas, with the largest subsamples in services, and smaller subsamples in trade and production fields. Regarding the industries, the most present were the consulting, technical and scientific services.

Table 5.1.2 Hierarchical regression analysis: independent and interaction effects on actual sales growth

	<i>Base model</i>	<i>Independent effects only</i>	<i>Interaction effects</i>
Business size	0,17 [†]	0,14	0,15 [†]
Business age	-0,19*	-0,23*	-0,20*
Respondent's age	-0,21 [†]	-0,20 [†]	-0,23*
Start-up experience	0,13	0,12	0,15 [†]
Industry experience	0,01	-0,01	-0,03
Education	0,14	0,13	0,12
Network size	-0,05	-0,04	-0,05
High-technology industry	-0,04	-0,09	-0,07
Growth aspiration		-0,11	-0,04
Resource availability		-0,09	-0,06
Technological change		0,20*	0,19*
Aspiration * Resource availability			-0,20*
Aspiration * Technological change			0,19*
R ²	0,15*	0,20**	0,28***
Adj. R ²	0,09*	0,13**	0,20***
ΔR ²		0,05	0,08

Note: Standardized regression coefficients are displayed in the table.

[†]p<0,1; *p < 0,05; **p < 0,01; ***p < 0,001; n=133.

Independent (main) effects only model

Table II reports the results of the hierarchical regression analysis. In a first step, we only entered the control variables in a base model reported in column 2. This model explains only a small share of the variance of the growth dependent variable. (R² = 0,15, p < 0,05). As predicted by prior research, business age and respondent's age were

negatively related to growth – the first significantly, the second one marginally significant. It seems that as the founders and their businesses get older, they are less willing to adapt to and less likely to embrace the change and dynamics that automatically come with growth. Unlike previous results suggest, business size was positively related to growth. Having more employees might increase the chances of the innovation that is needed for growth, but this result might also be due to the reverse causality, meaning that higher growth created larger firms (Pagano & Schivardi, 2003).

In a second step, the independent main effects were entered. The results are reported in column 3. The main effects model makes an explanatory contribution higher than the base model ($R^2 = 0,20$; $\Delta R^2 = 0,05$, $p < 0,01$). Within the main effects model, the findings suggest that growth aspiration does not have a statistically significant influence on growth. Therefore, Hypothesis 1 (small ventures managed by entrepreneurs with higher growth aspirations achieve greater growth) is not supported.

The rate of technological change has a statistically significant positive influence on growth. There was no evidence that resource availability had a main-effect-relationship with growth.

Full model including interaction effects

As shown in the right column, the addition of the interaction terms gives a significant explanatory contribution over and above that of the main effects only model. Explained variance increases by 0,08 to 0,28, statistically significant at $p < 0,001$. This shows that interaction effects are in fact present.

When examining the regression coefficients of the interaction terms, it is evident that resource availability and technological change moderate the relationship between growth aspiration and growth. Still, the positive relationship stipulated in the hypothesis 2 (the impact of the growth aspiration of the small business manager on the growth realized is stronger for new ventures with higher resource availability) cannot be supported. The interactive effect of growth aspiration and resource availability is statistically significant ($p < 0,01$), but negative ($\beta = -0,20$).

Hypothesis 3 predicted a positive effect of the interaction between growth aspiration and technology change on growth. With a β of 0,19 and statistically significant at $p < 0,05$, technology change does positively moderate the relationship between growth

aspiration and growth. Thus, Hypothesis 3 is supported.

To better depict the nature of the two interactions, each relationship was plotted on a y-axis of growth and an x-axis of growth aspiration for high and low levels of the moderator term, with the help of the regression coefficients. The plots are displayed in figures 5.1.1 and 5.1.2.

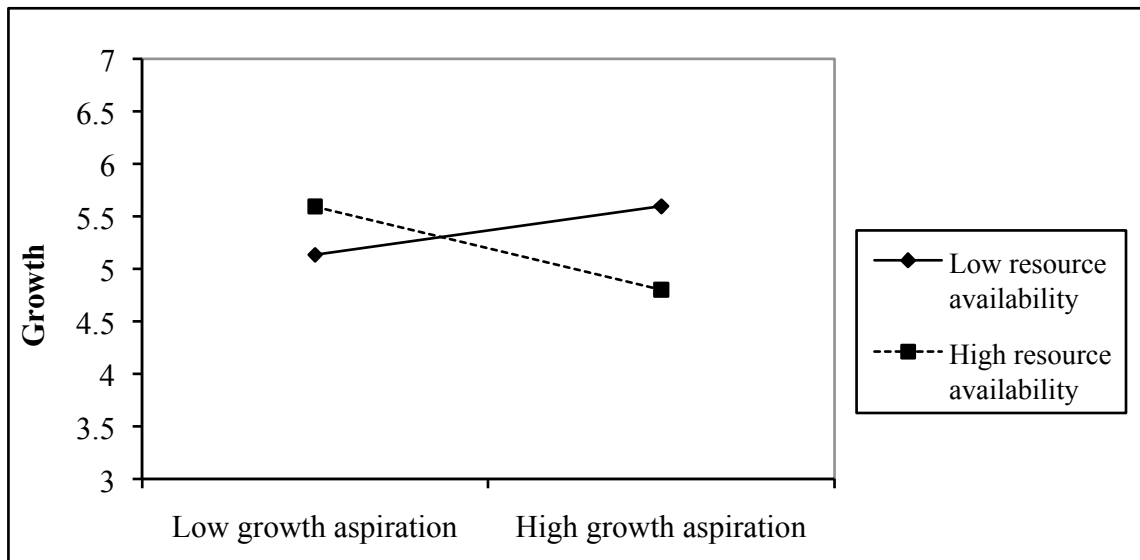


Figure 5.1.1 Interaction of growth aspiration and resource availability on growth

Figure 5.1.1 shows that growth increases with growth aspiration when the availability of resources is low and that growth decreases with growth aspiration when the availability of resources is high. This finding leads to the rejection of Hypothesis 2.

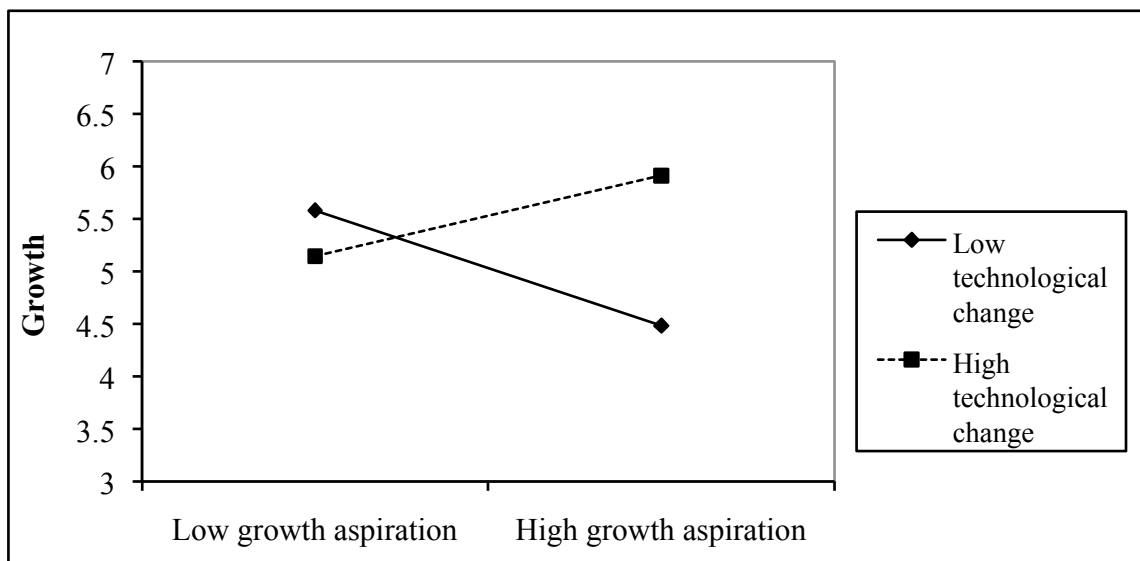


Figure 5.1.2 Interaction of growth aspiration and technological change on growth

Figure 5.1.2 indicates that growth increases with growth aspiration for companies active in industries with high rate of technological change and that growth decreases with growth aspiration for companies active in industries with low rate of technological change. This finding provides support for Hypothesis 3.

5.2 Discussion

Hypothesis 1

In this thesis, the main hypothesis that growth aspiration positively influences growth could not be supported. An explanation for the lack of significance can be the fact that the relationship between aspiration and growth is influenced by the individual's degree of volitional control, that is the ability to perform the behaviour at will (Ajzen, 1991; Delmar & Wiklund, 2008). It seems that growth aspiration of the founder alone does not have any influence on the growth of his or her venture. Growth aspiration alone is not sufficient for growth. It will only have a relationship to growth when combined with the right enablers, as it will be shown below.

Growth is regarded as a complex task, characterized by multiple ways of attaining the desired result (Delmar & Wiklund, 2008). The growth aspiration of the founders does not operate directly, but through the internal and external means they have at their disposal. Internal organizational resources like for example the owner-manager's capabilities and those of their employees can influence the realisation of growth aspiration. External opportunities available in the environment can also help realize growth wishes (Bird, 1988; Davidsson, 1989; Wiklund & Shepherd, 2003). An explanation for the lack of significance of the relationship between growth aspiration and growth might be the fact that, in our sample, the founders did not have the proper means at their disposal in order to make the aspirations happen.

Another explanation for the lack of significance between growth aspiration and growth might be the over-optimism of the entrepreneurs in our sample when expressing their growth aspiration. It was shown that entrepreneurs are generally very optimistic, regardless of how prepared they are to run their businesses (Cooper, Woo &

Dunkelberg, 1988) and that the level of optimism is negatively correlated to growth (Hmieleski & Baron, 2009).

Entrepreneurs seem to be particularly over-optimistic when they lack previous start-up experience. Entrepreneurial experience is a primary mode for increasing one's entrepreneurial self-efficacy, because it provides opportunities for "enactive mastery" (Zhao, Seibert, & Hills, 2005). In other words, founders with entrepreneurial experience have already completed the following key tasks: developing contacts (Danson, 1999), gaining knowledge about obtaining the most appropriate sources of financing (Starr & Bygrave, 1991), learning the managerial and technical skills necessary for leading new ventures (Wright, Westhead & Sohl, 1998), and identifying how to serve new and emerging market segments (Wright, Robbie, & Ennew, 1997). All these tasks increase the self-efficacy of the founders and their capability to optimally evaluate different situations (Zhao et al., 2005). Moreover, entrepreneurial experience provides the opportunity of role modeling, that is observing successful role models and learning vicariously (Zhao, Seibert, & Hills, 2005).

As entrepreneurs gain experience and feedback from previously started ventures, their accuracy in judgments increases and overconfidence diminishes (Keren, 1987). Habitual or repeat entrepreneurs develop richer networks with customers, suppliers and other players in the industry (Hellman & Puri, 2002; Shane & Cable, 2002). Thus, they have more possibilities to collect information and become more aware of the risks of pursuing different opportunities (Hayward, Shepherd, & Griffin, 2006). Prior self-employment experience helps tempering or counterbalancing entrepreneurs' high levels of optimism (Hayward, Shepherd, & Griffin, 2006). Therefore, we expect that more entrepreneurial experience will lead to more realistic and practicable growth aspirations.

Compared to samples in other studies, the founders in our sample possess below average founding experience. Entrepreneurs in other samples have founded on average from 3 to 3,4 ventures before starting the current one (Delmar & Shane, 2006; Stuart & Abetti, 1988). These numbers translate into a high to very high prior start-up experience.

In contrast, in our sample, 59,4% of the founders have no or very low founding experience. On average, they score 2,83 on a scale from 1 (no founding experience) to 7 (extensive founding experience).

To sum up, it seems that the low prior founding experience of the founders in our study led to over-optimism when formulating the growth aspirations. This might explain why growth aspiration was found to have no significant relationship to growth.

Hypothesis 2

Maybe the most interesting and at first sight intriguing result of this thesis is the negative interaction effect of growth aspiration and resource availability on growth.

When only the independent effects were investigated, resource availability did not have a significant relationship with growth. In order to have a significant relationship, simultaneous consideration of the small business manager's growth aspirations was required. Anyway, this interaction effect between the two on growth was negative and the hypothesis we formulated was not supported.

From Figure 5.1.1 we can derive that founders with low growth aspiration but high resource availability will achieve a higher growth than founders with low growth aspiration and low resource availability. In the case of low growth aspiration, it seems convenient to have higher access to resources.

Among founders with high growth aspirations though, those with lower availability of resources will achieve a higher growth than those with high resource availability.

This result might seem at a first glance inconsistent. Past research shows that the availability of resources has a generally positive influence on growth (Castrogiovanni, 1991; Covin & Slevin, 1991; Vesper, 1980). Still, this might not always be the case for young private companies as those in our sample.

Most newly founded ventures face harsh resource constraints and begin with very limited resources (Baker & Nelson, 2005). While some new ventures are able to support their initiatives through venture capital, such resources are not broadly available to all new firms (Holtz-Eakin, Joulfaian & Rosen, 1994). Even so, there are entrepreneurs that pursue growth despite the resource constraints and often do better than those with high availability of resources. Their entrepreneurial persistence and ingenuity can be described by the term "entrepreneurial bricolage" (Lévi-Strauss, 1967), meaning "making do with what is at hand". Resources "at hand" are resources that are available very cheaply or for free, often because others think they are useless or substandard.

Entrepreneurs that use bricolage usually disregard limitations set by material resources and try out new solutions. They combine and re-use existing resources for other purposes than those they were originally intended for (Baker & Nelson, 2005).

In his study of slack resources and performance of privately held companies, George (2005) differentiates between resource availability and resource demand and defines transient slack as the excess resources relative to the firm's demands. The comparison of availability and demand of resources is relevant for the study of new ventures where founders usually pull together whatever resources to satisfy needs (Baker & Nelson, 2005). George (2005) argues that performance will be high when transient slack is very high or very low, that is, when resource availability is much lower or much higher than resource demand; and that performance will be low when transient slack is zero, marginally positive or marginally negative.

Firms with high demand but few resources are likely to be more efficient while finding alternative ways to efficiently leverage and stretch their available resources (Baker & Nelson, 2005; Starr & Macmillan, 1990). This happens because resource constraints change the behaviour by which resources are acquired and used, forcing managers to improve the allocative efficiency (George, 2005). This constellation of high resource demands, but low resource availability will promote relatively low-cost experimentation and learning, and institutionalize the monitoring of resource spending (Baker, Pricer & Nenide, 2000). Leibenstein (1980) suggested that firms are inefficient in deploying resources. Therefore, if demand for resources exceeds their availability, firms are likely to deploy resources more efficiently and grow. Other past research also showed that undercapitalized firms outperformed those with excess capital (Baker, Pricer & Nenide, 2000).

On the other hand, we cannot look away from the fact that resources do help. But as argued above, not that much ventures with high resource demands. High availability of resources is more welcomed for firms with lower demands, so George (2005). Even if the resource demand is not high, the availability of resources acts as encouragement to experiment, to take risks and become proactive in their strategic choices (George, 2005).

Lastly, when transient slack is zero, marginally positive or marginally negative (availability of resources more or less equals demand), performance will be low because there is no need to experiment or bootstrap (George, 2005). When the resource demands are fulfilled by enough resource availability, self-satisfaction of the founders might arise. Companies become less interested in undertaking initiatives through experimentation or in exploiting entrepreneurial opportunities (George, 2005). This leads to less growth and lower performance. On the other hand, when resources are enough to satisfy demands, there is also no incentive to bootstrapping, process that might increase efficiency, and therefore performance.

George's (2005) argumentation can be transferred also to our study of growth, as growth is a very important measure of new venture performance (Bhidé, 1999; Venkataraman, 1997). Moreover, growth aspiration is related to and decides about the resource demands. Founders with higher growth aspiration are likely to undertake more initiatives that will increase their sales and expand their markets (cf. Ajzen, 1991; Wiklund & Shepherd, 2003). Therefore, they are likely to have higher resource demands than those founders with low growth aspiration.

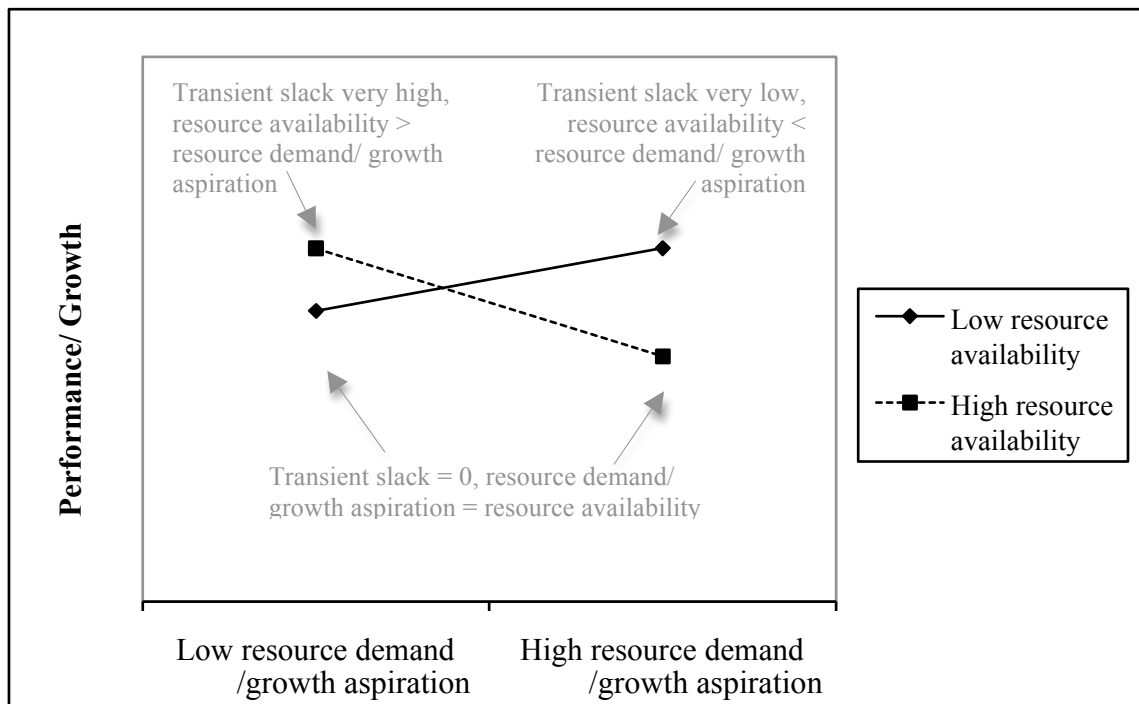


Figure 5.2.1 Interaction of resource demand/ growth aspiration and resource availability on performance/ growth

Looking at the figure above, we can see that the argument presented by George (2005) fits very well our results for the interaction relationship between growth aspiration and resource availability and its influence on growth. Founders with low growth aspiration but high resource availability (the equivalent of very high transient slack) will have a higher growth because of the possibility to experiment and to change strategic directions. Even if the owner-manager has no high growth aspiration, resources act as encouragement to experiment, to take risks and become proactive in their strategic choices (George, 2005).

Furthermore, founders with high growth aspirations but low resource availability (the equivalent of very low transient slack) will also grow more, because bootstrapping resources leads to increases in allocative efficiency.

On the other hand, founders with high growth aspiration and high resource availability might become overly optimistic and implement inappropriate strategic actions (Cooper, Dunkelberg, & Woo, 1988; de Meza & Southey, 1996) that decrease performance (Bateman & Zeithaml, 1989). They might be susceptible to such biases as planning fallacy (Kahneman & Lovallo, 1994) and escalation of commitment (Ross & Staw, 1993). In the case of planning fallacy, founders become overconfident about the feasibility and the duration of the projects, while escalation of commitment implies defending and continuing a course of action despite negative outcomes.

When both growth aspiration and resource availability are low, it is probable that there will be no or low growth, since there is neither a will, nor a possibility to grow. Bootstrapping needs will, and experimentation needs resources, as shown above.

In this thesis, the comparison of the main effect and contingent relationships involving resource availability suggest that the effect of resource availability on growth might remain hidden if only the main effect relationships are investigated (cf. Wiklund & Shepherd, 2003). Based on this thesis' findings, we argue that simultaneous consideration of an individual's growth aspirations provides an even deeper understanding of the relationship between resource availability and growth. To sum up, founders with high growth aspiration will achieve a higher growth when resource availability is low, thanks to allocative efficiency. A high resource availability will predispose founders with high growth aspiration to biases and impede therefore higher growth. When growth aspiration is low, resource availability is welcomed, because it

stimulates experimentation and proactive strategies and leads therefore to a higher growth.

Hypothesis 3

The main effects model supports prior research (Casson, 1995; Tushman & Anderson, 1986), and suggests that firms active in an environment with a higher rate of technology change will achieve a higher growth.

Moreover, when we jointly consider growth aspiration and technology change, we observe that the interaction term between these two makes a significant explanatory contribution to growth over and above the main effects only model. Founders with high growth aspiration will achieve a higher growth if they are active in an environment with higher rate of technological change.

Figure 5.1.2 shows that among founders with high growth aspiration, those operating in an environment with a higher rate of technological change will achieve a higher growth than those active in environments with lower rate of technological change. On the other hand, founders with low growth aspiration will achieve a marginally higher growth when active in an environment with lower technological change rate than when active in an environment with higher technological change rate.

Technological change magnifies the influence that growth aspiration has on growth. When growth aspiration is high, higher technological change brings about much more growth, when growth aspiration is low, higher technological change marginally lowers the growth.

We argued that technological change has more aspects. On the one hand, technology change facilitates execution of innovative ideas and provides for more opportunities to be recognized by entrepreneurs, and on the other hand it increases uncertainty and environmental dynamism.

It is their growth aspiration that allows founders to take advantage of technological change. Baron (2006) explained that those entrepreneurs who are alert to opportunities, who are involved in an active search for them and who possess prior knowledge of the market, are more likely to recognize opportunities. It is more likely that those founders that have higher growth aspiration will be involved in an active search for opportunities

and be alert to them, since they have an intention to grow. They will be the ones to recognize and exploit technological opportunities. Those firms that are among the first to adopt the new products or processes offered by the technological change are ahead on the learning curve than those that follow (Tushman & Anderson, 1986).

On the other hand, it is also their low growth aspiration that keeps the advantages of technology change away from some founders. Firms that do not have growth in focus are less alert to opportunities in the changing technologic environment and will thus profit less, and even face negative growth in such dynamic environments that ask too much adaptability and renewal capabilities from them (Wiklund & Shepherd, 2003).

If we combine the results from the two hypotheses discussed above, we see that the highest growth will be achieved by those new ventures with high growth aspiration and lower resource availability, which are active in an industry with rapid changing technology. By putting them together, we shed a new light on these findings. Throughout the history, the best creative ideas and innovations arose under pressure of great constraints (Richard, 2011). Our findings show as well that there are not resources that are needed, but the will to growth and an industry that rewards technology change, meaning innovation.

To sum up, it seems that low resource availability and high technology change rate create an advantageous milieu for those with willingness to grow.

6. Implications

6.1 Implications for entrepreneurs

A general implication for entrepreneurs derived from this thesis is that they have to be aware of the interplays between their level of growth aspiration and different organizational and environmental conditions like resource availability and technological change. First, knowing that high resource availability can also do harm, not only good, depending on their growth aspiration*, entrepreneurs should try to obtain that level of resource availability that best fits their aspiration. Second, different industries have different rates of technological change. Knowing that the rate of technological change – together with their growth aspirations – decides about whether they are going to achieve the desired growth rates, entrepreneurs should choose an industry or a sector thereof where they can achieve their growth goals.

As George (2005) put it, in the case of resources, more is better and less is more. Entrepreneurs with low growth aspirations should prefer relative high resource availability, since in this way they are expected to achieve most growth. Resources act as encouragement to experiment and take risks. By doing this, they can become proactive in their strategic choices and achieve at least a better profitability, as long as growth is not desired.

Founders with low growth aspiration and few resources available have neither the will to growth, nor the freedom of action given by resources. They can try to increase the resource availability to get to a position that allows them to be at least more profitable.

Our findings show that founders with high growth aspirations do not have to long for high resource availability. They can bootstrap and stretch their resources and by that achieve an allocative efficiency that will fuel their growth. In this way they will grow even more and not lose ownership. If the same high-aspiring founders do have many resources at their disposal, they should be aware that self-satisfaction, over-optimism and other biases can arise in such position.

* When making the recommendations, we consider that growth aspiration was found to be a stable phenomenon and therefore a change in growth aspiration is not considered; see chapter 4.2.1.

Based on our findings, table 6.1.1 pictures the implications for entrepreneurs having different levels of growth aspiration and resource availability and suggests some courses of action they might take.

Table 6.1.1 Possible actions of new ventures, depending on their growth aspiration and resource availability endowments

Resource availability	High	Experiment	Beware of biases
	Low	Increase profitability	Bootstrap
		Low Growth	High aspiration

Our findings about the interplay between growth aspiration and resources availability imply that entrepreneurs should change their view on resources and the way they use them. Leading schools of thought like the Babson College and the Harvard Business School have proposed a so-called “entrepreneurial approach to resources”, which should be followed especially by the ventures that are in the “bootstrap” situation, but also by the others. Our results are in line with this approach to resources. Entrepreneurs are recommended to lower their risk by using less capital, make staged capital commitments, keep their flexibility by not owning, but just controlling resources, lowering fixed costs (Stevenson, Roberts & Grousbeck, 1985). Moreover, they should marshal and minimize resources, use other peoples’ resources, find alternatives to the formal costly board of directors, add value to the venture through the contacts and networks they make (Timmons & Spinelli, 2003, p. 342 ff.). Moreover, just like the successful entrepreneur Greg Gianforte* stated, the lack of money, employees, or equipment is considered to be a huge advantage because it forces the founder who is bootstrapping to concentrate on selling, in order to bring cash into the business (Barker, 2002).

Going on, founders should also make sure that the rate of technological change of the industry they are active in fits their growth aspiration.

* Greg Gianforte retired at the age of 33 after he and his partners sold their software business, Brightwork Development Inc., to McAfee Associates for more than \$10 million.

Entrepreneurs with low growth aspirations should look for environments and industries with a low rate of technological change, since this is the only way in which their venture can survive. Otherwise it will be washed out by the quick changes and by an uncertainty it cannot face. If such entrepreneurs are in a high technology change industry, they should try to re-profile their venture to another industry or activity field. On the other hand, the ventures having high growth aspiration should choose an industry with high rate of technology change, since only in such an environment can they find and profit from opportunities which will help achieve the desired high growth. Otherwise they have no prospect of growth, in spite of their will. If they are in an industry with low technological change, they should try to reinvent that industry and change its pace or re-profile the venture to another industry or activity field.

Below, these implications are summarized.

Table 6.1.2 Possible actions of new ventures as answer to their growth aspiration and rate of technology change endowments

Technological change	High	Re-profile to another industry or domain	High growth
	Low	Cosy position	Re-profile to another industry or domain Reinvent the industry
		Low	High
		Growth aspiration	

6.2 Implications for policy makers and venture capitalists

The policy makers are well aware of the positive effects of high growth entrepreneurship on the economy and society; e.g. human progress, innovation, market efficiency, productivity increase, job creation (Read & Sarasvathy, 2005; Santos, 2004; Sarasvathy, 2001). Because of all this, they should focus on helping new ventures grow and prosper. In Germany, experts rated the engagement of the policy makers and the priority they give to entrepreneurship slightly positive: 0,14 on a scale from -2 very negative to 2 very positive regarding factors of the country's start-up climate (GEM

Report on Germany, 2010). Still, there is a lot of space for improvement.

As our findings showed, there is an opportunity for economic growth if entrepreneurs match their resources and opportunities to their growth aspirations. On this basis, we will go through the implications of our findings for the policy makers and venture capitalists.

The first finding of the thesis about different levels of resource availability being needed by different new ventures is of interest for both policy makers and venture capitalists. Venture capitalists are usually the one investing massively in newly founded ventures with high growth potential and possibly cultivating in this way too high optimism or biases like planning fallacy and escalation of commitment (for definitions, see chapter 5.3). Our results showed that the availability of plenty resources can also harm. Reinforcing our results, an extensive study showed that only 21% to 30% of the venture-capital-backed start-ups in the U.S. succeed (Gompers, Kovner, Lerner & Scharfstein, 2010). Therefore, venture capitalists should maybe think about changing their funding strategy. However, if we consider the experts opinion expressed in the GEM Report on Germany 2010, we can assume that in Germany, newly founded ventures do not receive too much money from investors. Funding was rated -0,05 on the same scale regarding the quality of the country's start-up climate, from -2 to +2.

Moreover, policy makers are also making resources available to new ventures in the form of public subsidy programmes. It seems that, at least in Germany, these public subsidies for new ventures are sufficient: they were rated 0,70 by experts, on the scale from -2 very negative to 2 very positive regarding factors of the country's start-up climate (GEM Report on Germany, 2010). Considering our results that less resource availability is more helpful for entrepreneurs with high growth aspirations than more resources, policy makers could consider the entrepreneurship approach to resources presented in chapter 6.1 when subsidizing new ventures. The authorities in charge should offer less capital to new ventures, and organize more forums that offer the possibility for new ventures to network and club together their resources, after the principle of not owning, but only using resources.

Another task for the policy makers and educators would be to educate future entrepreneurs and inform the public opinion about the fact that a possible lack of

resources should not be a barrier and that ventures might even do better when bootstrapping. This might encourage more people to turn to entrepreneurship and pursue opportunities.

As our results show, a higher rate of technology change alone brings about more growth to the new ventures operating in that industry. Moreover, the effect on growth is even bigger when a high rate of technology change is coupled with high growth aspiration from the owner-manager. Thus, policy makers need to focus on making sure that technology improvements in all sectors of the economy are supported. This might not be an easy task for the governments though. For example, policy makers could improve the incentives for scientists and for innovative companies by ensuring the protection of intellectual property. But in the same time, they have to make sure that the transfer of knowledge and technology is also allowed, which is also important for diffusing technological innovations. In Germany, experts rated the ease of transferring knowledge and technology only -0,26 on a scale from -2 very negative to 2 very positive regarding factors of the country's start-up climate (GEM Report on Germany, 2010), while the protection of intellectual property (patents) was rated 0,47 on the same scale. It seems that in Germany, authorities should try to support technology and knowledge transfer, if possible without lowering the protection for intellectual property.

7. Upshot and outlook

7.1 Contributions

We started this thesis by asking ourselves why do newly founded ventures exhibit so different growth rates. Acknowledging that growth is an intentional process, we tried to explain the variance in growth rates with the help of the growth aspiration of the founder, and the resources and opportunities available to him or her. We found out that growth aspiration alone does not have an effect on growth. But when combined with resource availability and with technological change, it significantly influences growth.

This research makes some significant contributions to the existing literature.

Firstly, we empirically assess the relationship between growth aspiration and growth in newly founded ventures, an area of research that has received little attention in the past (Wiklund & Shepherd, 2003). Secondly, we recognize that moderators such as resources and opportunities significantly influence this relationship.

This thesis follows the contemporary research line in entrepreneurship theory and places the entrepreneur and his motivation in the centre of the frame of new venture performance, but also considers organizational factors such as resources and environmental factors such as the rate of technological change (Shane and Venkataraman, 2000; Timmons & Spinelli, 2003; Venkataraman, 1997). Studying individuals separately from their resources and opportunities may yield seriously biased results (Wiklund & Shepherd, 2003).

The analysis of motivation, cognition and especially entrepreneurial intentions and behaviour are currently at the forefront of the entrepreneurship research (Korunka & Frank, 2003). By grounding this work on the theory of planned behaviour, we recognize the importance of entrepreneurial intentions and thus align this thesis to the most promising line of research in the field.

This thesis complements previous research on the relationship between growth aspiration and growth (Wiklund & Shepherd, 2003; Delmar & Wiklund, 2008). The most valuable contribution we provide is the empirical evidence of interactions that are

significantly related to growth, above and beyond the direct relationships explained by the original variables. This is the case for the interactions between growth aspiration and resource availability and growth aspiration and technological change. The results from the two interaction hypotheses suggest that even more than the individual's growth aspiration, its interaction with the resources and the opportunities that arise in his environment is of importance. The results cause the need to reframe the theoretical question for future research from the simple question of whether growth aspiration leads to growth to a more complex set of questions: How much resources are needed for founders with different levels of growth aspiration to achieve the desired growth? Which rate of environmental change best fits different growth aspirations?

Studies who do not investigate such interaction effects like the ones we reveal in this thesis run the risk of drawing the premature conclusion that growth aspiration does not have any effect or has only a marginal effect on growth (Wiklund & Shepherd, 2003).

Our findings from Hypothesis 2 suggest some possible boundaries to the linear positive relationship between resources and growth, assumed by the earlier behavioural theory (Bourgeois, 1981; Cyert & March, 1963). Our research supports the newer resource constraints literature (Baker & Nelson, 2005; Mosakowski, 2002), which states that firms with fewer resources are likely to leverage them more, the entrepreneurial bricolage approach (Lévi-Strauss, 1967), and the similar Harvard Business School's entrepreneurial approach to resources, mentioned in chapter 6.1.

Our findings from Hypothesis 3 strengthen the main statement of the theory of planned behaviour, that not only is intention necessary in order to perform a behaviour, but so are opportunities. Furthermore, it supports past research showing that environmental dynamism is positive for the growth and performance of new ventures (Chandler & Hanks, 1994; Covin & Slevin, 1991; Wiklund & Shepherd, 2003; Zahra, 1993).

Taken together, the findings offer preliminary evidence that matching different levels of growth aspiration to the suitable level of resource availability and technological change leads to higher growth rates of new ventures.

7.2 Limitations

Our study is not a longitudinal, but a cross-sectional one. A longitudinal design – meaning that growth aspiration data were collected at one point in time and data in growth were collected afterwards – might be better for studying the relationship of growth aspiration and growth, since growth is a change process (Wiklund & Shepherd, 2003). Measuring independent variables at the end of the growth period could result in biases. However, by showing that growth aspiration is a stable phenomenon (Delmar & Wiklund, 2008), we can be confident that our study is free of significant biases.

The fact that growth aspiration was proven to be stable in time allowed us to formulate and test the relation between growth aspiration and growth at one point in time, in a cross-sectional study. There is one research that also recognizes a feedback loop and argues that there might be a reverse relation between the two: that the growth achieved also influences the growth aspiration (Delmar & Wiklund, 2008). Because we did not have at our disposal data from a longitudinal study, we could not consider such an inverse feedback relation.

We are confident that our results can be generalizable to newly founded venture outside Germany as well. Still, it should to be considered that our study focuses only on German new ventures and that country effects such as culture might be present. The Global Entrepreneurship (2010) showed that there are differences in growth aspirations across countries, which may mean that growth aspirations are related to cultural factors (Delmar & Wiklund, 2009).

We measure growth aspiration and growth, but we do not have to ignore the fact that, when investigating the relationship between the two, there might be intermediate variables such as strategy or behaviour (Delmar & Wiklund, 2009). Adding such an intermediate variable would have been valuable, since they are closer to the founder's intentions and aspirations than outcomes such as growth, that depend as well on other factors outside the founder's control. We tried to minimize the possibility of a third variable by introducing important control variables. Moreover, behaviour is very difficult to measure and record. In the same time, outcomes are the most important source of information about the strategy and behaviours of the entrepreneurs (Delmar & Wiklund, 2009). All this assures us that our findings and their interpretation are valid.

We must draw attention on the fact that our analysis is based on self-reported measures. However, as already mentioned above, previous research supports the reliability and validity of self-reported measures (Brush & Vanderwerf, 1992; Lechner et al., 2006). Moreover, in the case of newly founded private companies, there are almost no objective, public data available.

Going further with the variables, the measurement of the dependent variable “sales growth” could be further strengthened by a multi-item operationalization.

7.3 Future research

The results of this research suggest that the relationship between growth aspiration and growth is more complex than theorized in this paper and in other studies. This paper found no direct relationship between the two, but showed that, when combined with organizational and environmental factors, growth aspiration does have an effect on growth. Further research is required to fully explore the intricacies of this argument.

First, future research might investigate how other moderators influence the relationship between growth aspiration and growth.

We postulated that general resource availability acts as a moderator between growth aspiration and growth. Future studies can leverage these findings and study the effects that particular types of resources (e.g. human, financial, networks) have on the growth aspiration-growth relation.

We investigated how the interaction between growth aspiration and technology change influences growth. Future research might as well think about other important environmental or industry characteristics (e.g. entry barriers, competitor structure) as moderators of the same relationship.

An interesting result of this research was that founders with high aspiration will achieve a higher growth when they have lower availability of resources. Research about bootstrapping and reaching allocative efficiency would be very interesting and useful for entrepreneurs.

This thesis could not find any relationship between growth aspiration and growth. But, given the fact that other studies did, it would be interesting to find out more about the heterogeneity of growth aspirations, building on previous works that investigated the antecedents of growth aspiration (e.g., Davidsson, 1989; Kolvereid, 1992; Wiklund et al., 1997). The theory of planned behaviour gives a theoretical framework for this and points out to the attitudes of the individuals and to societal norms as determinants of growth aspirations.

Furthermore, a longitudinal study might offer a better understanding of the relationship between growth aspiration and the growth outcome. Such a study could also provide the opportunity to test whether there is any inverse influential relation between the achieved growth and growth aspiration.

Moreover, the Global Entrepreneurship Monitor offers an international comparison of growth aspirations levels. Starting from that, it could be investigated which particular national societal norms nurture high levels of growth aspirations and which hinders them. Going further, one could also use Hofstede's established cultural dimensions in order to relate culture to the level of growth aspiration.

It would also be interesting to know whether there are more types of growth aspiration. Future research could investigate to see whether we can distinguish e.g. between domestic growth aspiration, when the founder wishes to increase the domestic client base or the quantity of sales, and international growth aspiration, when the founder wishes to grow by expanding internationally.

Our study looked at the two-way interactions between growth aspiration and resource availability and between growth aspiration and rate of technological change, and showed that they give an explanatory contribution over and above that of the main effects. It would be interesting to go on and investigate also the three-way interaction effect between growth aspiration, resource availability and technological change on growth.

Furthermore, as we argued in the limitations chapter, future research could integrate strategy in the growth aspiration-growth relation, using for example strategic decision-making (Schwenk, 1988) and strategic choice theories (Child, 1972). It would be interesting to see what kind of strategies lead to more growth, when the level of resource availability is for example low and rate of technological change high.

7.4 Conclusions

We began this research by questioning why newly founded ventures vary so much in their growth rates. Recognizing that growth is an intentional phenomenon that has to be desired by the founder in order to happen, we tried to answer this question by looking at the growth aspiration of the founders. Recent studies suggested that the relationship between growth aspiration and growth is more complex than was previously suggested, calling for the investigation of eventual moderating effects (cf. Delmar & Wiklund, 2008; Wiklund & Shepherd, 2003). Therefore, we included as moderators the resources and opportunities available to the owner-manager. We were able to establish some important and interesting relationships between growth aspiration, resource availability, technological change and growth.

We started this thesis by introducing different theoretical concepts such as: entrepreneurship, new venture growth, intentions and growth aspiration, resources and opportunities. We introduced the theory of planned behaviour, but also other models of growth, and on that basis we formulated a moderated intentional model and the hypotheses of this thesis.

We tested out the hypotheses in a study of 133 German newly founded ventures. The data was analysed by moderated hierarchical regression analysis approach. After describing the measures and variables, we presented the results and discussed them, considering also implications for entrepreneurs and policy makers, limitations and starting points for future research.

While no direct influence of growth aspiration on growth was found, we were able to prove that the relation between the two depends on the level of resources available to the founder and on the rate of technological change present in the industry where the venture is operating.

Resource availability will influence the relation between growth aspiration and growth in the following way: ventures with high growth aspirations will achieve higher growth when resource availability is low; while firms with low growth aspiration will achieve more growth when resource availability is high.

Technology change moderates as well the relation between growth aspiration and growth: ventures with high growth aspiration will achieve more growth in environments

with high technology change than in environments with low technology change. New ventures with low growth aspiration will achieve marginally more growth when active in industries with low technology change rate than in industries with high technology change rate.

Through our findings, we have taken an important step in clarifying how different moderating resources and opportunities influence the relationship between growth aspiration and growth. Still, there is considerably more to learn about the founder's growth aspiration and new venture growth and about the moderators of this relationship. Such research has significant practical implications and importance, given the significance of high-growth ventures to the economy.

Appendices

Appendix 1. Institutional versus task environment perspectives

<i>Relevant dimensions</i>	<i>Institutional environment</i>	<i>Task environment</i>
Environmental context	Political and legal	Market
Key demand factor	Legitimacy	Resources
Type of pressure	Coercive, mimetic, normative	Competitive
Key constituents	State agencies and professional associations	Sources of scarce production factors
Mechanism of external control	Rules, regulations, inspections	Critical exchange dependencies
Organizational success factor	Conformity to institutional rules and norms	Acquisition and control of critical resources
Dominant threat to autonomy	Government interventions	Resource exchange partners

Source: Oliver (1997)

Appendix 2. Collinearity statistics: Tolerance and VIF for each of the three models used in the hierarchical regression analysis

Interaction effects model	Collinearity Statistics	
	Tolerance	VIF
Business size	,868	1,152
Business age	,693	1,442
Founder's age	,540	1,851
Self-employment experience	,887	1,128
Industry experience	,612	1,634
Education	,877	1,141
Network size	,913	1,095
High technology industry	,889	1,125
Growth aspiration	,691	1,446
Resource availability	,917	1,090
Technological change	,892	1,122
Growth aspiration x Resource availability	,821	1,218
Growth aspiration x Technological change	,946	1,057

Dependent Variable: Sales Growth

Source: own representation from SPSS

References

- Acs, Z.J. (2008). Foundations of high impact entrepreneurship. *Foundations and Trends in Entrepreneurship*, 4(6), 535–620.
- Acs, Z. J., Desai, S., & Klapper, L. (2008). What does “entrepreneurship” data really show? *Small Business Economics*, 31(3), 265-281.
- Ahmad, N. & Gonnard, E. (2007). *High growth enterprises and gazelles*, Paper prepared for The International Consortium on Entrepreneurship (ICE) Meeting 22-23 February 2007 Copenhagen, Denmark, Statistics Directorate, OECD
- Aiken, L. S. & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, C. A.: Sage.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational behavior and human decision processes*, 50, 179-211.
- Ajzen, I. (1995). Attitudes and behavior. In A.S.R. Manstead & M. Hewstone (Eds.), *The Blackwell encyclopedia of social psychology* (pp. 52–57). Oxford: Blackwell Publishing Ltd.
- Albach, H. (1965). Der Einfluss von Forschung und Entwicklung auf das Unternehmenswachstum. *The Journal of Business Economics*, 1965.
- Aldrich, H. W. (1979). *Organizations and environment*. Englewood Cliffs, N. J.: Prentice-Hall.
- Aldrich, H., Rosen, B. & Woodward, W. (1987). The impact of social networks in business foundings and profit: A longitudinal study. In N. C. Churchill, J. A. Hornaday, B. A. Kirchoff, O. J. Krasner & K. H. Vesper (Eds.), *Frontiers of entrepreneurship research* (April, pp. 154-168). Welleseley, M. A.: Babson College.
- Aldrich, H. E. & Martinez, M. A. (2001). Many are called, but few are chosen: An evolutionary perspective for the study of entrepreneurship. *Entrepreneurship: Theory and Practice*, 25, 41-56.
- Allen, D. H. (1985). *An entrepreneurial marriage: Business incubators and start-ups*. Paper presented at the Babson Entrepreneurial Research Conference, Philadelphia.
- Almus, M. & Nerlinger, E. (1999). Growth of new technology-based firms: Which factors matter? *Small Business Economics*, 13, 141-154.
- Amason, A. C., Shrader, R. C. & Tompson, G. H. (2006). Newness and novelty: Relating top management team composition to new venture performance. *Journal of Business Venturing*, 21(1), 125–148.
- Ansoff, H.A. (1965). *Corporate strategy: An analytic approach to business policy for*

- growth and expansion*. New York: McGraw Hill.
- Ardishvili, A., Cardozo, S., Harmon, S. & Vadakath, S. (1998). *Towards a theory of new venture growth*. Paper presented at the 1998 Babson Entrepreneurship Research Conference, Ghent, Belgium.
- Arenius, P., & Minniti, M. (2005). Perceptual variables and nascent entrepreneurship. *Small Business Economics*, 24(3), 233-247.
- Armitage, C.J. & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–499.
- Autere, J. & Autio, A. (2000). Is entrepreneurship learned? Influence of mental models on growth motivation, strategy, and growth. *Academy of Management Conference*.
- Autio, E., Sapienza, H. J. & Almeida, J. G. (2000). Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal*. 43(5), 909-924.
- Autio, E., Sapienza, H. J. & Almeida, J. G. (2000). Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal* 43(5), 909–924.
- Backman, J. (1983). *Entrepreneurship and the outlook for America*. New York: The Free Press.
- Bailey, J. E. (1986). Learning styles of successful entrepreneurs. In R. Ronstadt, J. Hornaday, R. Peterson & K. Vesper (Eds.), *Frontiers of entrepreneurship research* (pp. 199-210). Wellesley, Mass.: Babson College.
- Bain, J. S. (1956). *Barriers to new competition*. Cambridge, M. A.: Harvard University Press.
- Bain, R. (1928). An attitude on attitude research. *American Journal of Sociology*, 33(6), 940-957.
- Baker, D. D. & Cullen, J. B. (1993). Administrative reorganization and configurational context; the contingent effects of age, size and change in size. *Academy of Management Journal*, 36, 1251-1277.
- Baker, T., Pricer, R. & Nenide, B. (2000). When less is more: Undercapitalization as a predictor of firm success. In P. Reynolds, E. Autio, C. Brush, W. Bygrave, S. Manigart, H. Sapienza & K. Shaver (Eds.), *Frontiers of entrepreneurship research*. Babson Park, M. A.: Babson College.
- Baker, T. & Nelson, R. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329-366.
- Barker, E. (2002). Start with nothing. *INC*. [Online serial]. Available at:

<http://www.inc.com/magazine/20020201/23855.html>

- Barkham, R., Gudgin, G., Hart, M. & Hanvey, E. (1996). *The determinants of small firm growth*. Gateshead, U. K.: Athenaeum Press.
- Barkham, R., Gudgin, G., Hart, M. & Harvey, E. (1996). *The determinants of small firm growth: An inter-regional study in the United Kingdom 1986–90*. London: Routledge.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99.
- Barrick, M. R. & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, 44(1), 1–26.
- Bateman, T. & Zeithaml, C. (1989). The psychological context of strategic decisions. *Strategic Management Journal*, 10, 587-592.
- Baum, R. J., Locke, E. A. & Smith, K. G. (2001). A multidimensional model of venture growth. *Academy of Management Journal*, 44(2), 292–303.
- Baum, J. R. & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology*, 89(4), 587–598.
- Bellu, R. R. & Sherman, H. (1995). Predicting firm success from task motivation and attributional style: A longitudinal study. *Entrepreneurship and Regional Development*, 7(4), 349–363.
- Bhidé, A. V. (1999). *The origins and evolution of new businesses*. New York: Oxford University Press.
- Birch, D. G.W. (1979). The job generation process. *MIT Program on Neighborhood and Regional Change*, 302.
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442-453.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1(1), 107–117.
- Bosma, N., Praag, M. van, Thurik, R. & Witt, G. de. (2002). The value of human and social capital investments for the business performance of startups. *Small Business Economics*, 23, 227–236.
- Boswell, J. (1972). *The rise and decline of small firms*. London: Allen and Unwin.
- Bourgeois, L. J. & Singh, J. (1983). Organizational slack and political behavior within top management groups. *Academy of Management Proceedings*, 43-49.

- Bowen, D. D. & Hirsch, R. D. (1986). The female entrepreneur: a career development perspective. *Academy of Management Review*, 11(2), 393-408.
- Breugst, N., Domurath, A., Patzelt, H. & Klaukien, A. (2012). Perception of entrepreneurial passion and employees' commitment to entrepreneurial ventures. *Entrepreneurship Theory and Practice*, 36(1), 171-192.
- Brockhaus, R. H. (1982). The psychology of the entrepreneur. In C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (pp. 39-71). Englewood Cliffs, N. J.: Prentice Hall.
- Brockhaus, R. H. & Horwitz, P. S. (1986). The psychology of the entrepreneur. In D. L. Sexton & R. W. Smilor (Eds.), *The art and science of entrepreneurship* (pp. 25-48). Cambridge, M. A.: Ballinger.
- Brown, T. (1996). *Resource orientation, entrepreneurial orientation and growth: How the perception of resource availability affects small firm growth*. Newark, N. J.: Rutgers University.
- Brown, T. & Kirchhof, B. (1997). The effects of resource availability and entrepreneurial orientation on firm growth. *Frontiers of entrepreneurship Research*. Wellesley, Mass.: Babson College.
- Brush, C. G. & Hirsch, R. D. (1988). Woman entrepreneurs: Strategic origins impact on growth. In B. Kirchoff, W. Long, W. E. McMullan & K. Vesper (Eds.), *Frontiers of entrepreneurship research* (pp. 612-625). Wellesley, Mass.: Babson College.
- Brush, C. G. & Vanderwerf, P. A. (1992). A comparison of methods and sources for obtaining estimates on new venture performance. *Journal of Business Venturing*, 7, 157-170.
- Bull, I. & Willard, G. E. (1993). Towards a theory of entrepreneurship. *Journal of Business Venturing*, 8(3), 183-195.
- Bygrave, W.D. (1989). The entrepreneurship paradigm (I): A philosophical look at its research methodologies. *Entrepreneurship Theory and Practice*, Fall, 7-26.
- Bygrave, W. D. & Hoder, C. W. (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice*, 16(2), 13-22.
- Bygrave, W. D. (1992). Venture capital returns in the 1980s. In D. L. Sexton & J. Kasarda (Eds.), *The state of the art of entrepreneurship* (pp. 438-462). Boston, M. A.: PWS-Kent.
- Cantillon, R. (1755). *Essai sur la nature du commerce en general*. Edited with English translation and other material by Henry Higgs, London: Macmillan, 1931, reprinted, New York: A. M. Kelley, 1964.
- Caprana, G. V. & Cervone, C. (2000). *Personality: Determinants, dynamics, and potentials*. New York: Cambridge University Press.

- Cardon, M. S., Stevens, C. E. & Gregoire, D. (2009). *The discriminant validity of entrepreneurial passion*. Paper presented at the 2009 Academy of Management Meetings, Chicago, IL.
- Cardon, M.S., Wincent, J., Singh, J. & Drnovsek, M. (2009). The nature and experience of entrepreneurial passion. *Academy of Management Review*, 34(3), 511–532.
- Carland, J. W., Hoy, F. & Carland, J. (1988). Who is an entrepreneur? Is a question worth asking. *American Journal of Small Business*, 12(4), 33-40.
- Carsrud, A. L., Olm, K. W. & Eddy, G. G. (1986). Entrepreneurship: Research in quest of a paradigm. In D. L. Sexton & R. W. Smilor (Eds.), *The art and science of entrepreneurship* (pp. 367-378). Cambridge, M. A.: Ballinger.
- Carsrud, A. L. & Johnson, R. W. (1989). Entrepreneurship: A social psychological perspective. *Entrepreneurship and Regional Development: An International Journal*, 1(1), 21-31.
- Casson, M. C. (1995). *Entrepreneurship and business culture*. Edward Elgar: Cheltenham
- Caves, R. E., Gale, B. T. & Porter, M. E. (1974). Inter-firm profitability differences. *Journal of Economic Literature*, 88, 181-192.
- Chambers, B. R., Hart S. L. & Denison, D. R. (1988). Founding team experience and new firm performance. In B. Kirchoff, W. Long, W. E. McMullan, K. Vesper & W. Wetzel, Jr. (Eds.), *Frontiers of entrepreneurship research* (pp. 106-118). Wellesley, Mass.: Babson College.
- Chandler, G. N. & Hanks, S. H. (1993). Measuring the performance of emerging businesses: A validation study. *Journal of Business Venturing*, 8, 391–408.
- Chandler, G. N. & Hanks, S. H. (1994). Market attractiveness, resource-based capabilities, venture strategies, and venture performance. *Journal of Business Venturing*, 9(4), 331–349.
- Child, J. (1972). Organization structure, environment, and performance: The role of strategic choice. *Sociology*, 6, 1-22.
- Churchill, N. C. & Lewis, V. L. (1983). The five stages of small business growth. *Harvard Business Review*, 61(3), 33-51.
- Cohen, J. & Cohen, P. (1983). *Applied multiple regression /correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, N. J.: Erlbaum.
- Cohen, N. (1980). The five stages of the entrepreneur. *Venture*, July, 40-43.
- Collins, O. & Moore, D. (1970). *The organization makers: A behavioural study of independent entrepreneurs*. Englewood Cliffs, N. J.: Prentice-Hall, Inc.

- Colombo, M. G., & Grilli, L. (2005). Founders' human capital and the growth of new technology-based firms: A competence-based view. *Research Policy*, 34(6), 795-816.
- Cooper, A. C. & Dunkelberg, W. C. (1987). Old questions, new answers, and methodological issues. *American Journal of Small Business*, 11(3), 11-23.
- Cooper, A. C., Woo, C. Y. & Dunkelberg, W. C. (1989). Entrepreneurship and the initial size of firms. *Journal of Business Venturing*, 4(5), 317-332.
- Cooper, A. C. & Gimeno-Gascon, F. J. (1992). Entrepreneurs, process of founding, and new firm performance. In D. L. Sexton & J. D. Kasarda (Eds.), *The state of the art of entrepreneurship* (pp. 301 – 340). Boston: PSW-Kent.
- Cooper, A. C., Gimeno-Gascon, F. J. & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, 9(5), 371-395.
- Covin, J. G. & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10, 75-87.
- Covin, J. & Covin, T. (1989). The effects of environmental context on the relationship between small firms' aggressiveness and performance. Paper Presented at the Academy of Management Meeting, Washington DC.
- Covin, J. G. & Slevin, D. P. (1990). New venture strategic posture, structure and performance: An industry life cycle analysis. *Journal of Business Venturing*, 5, 391-412.
- Covin, J. G. & Slevin, D. P. (1997). High growth transitions: Theoretical perspectives and suggested directions. In D. L. Sexton & R. W. Smilor (Eds.), *Entrepreneurship* (Vol. 2000, pp. 99-126). Chicago: Upstart Publishing.
- Cyert, R. & March, J. (1963). *A behavioral theory of the firm*. Englewood Cliffs, N. J.: Prentice- Hall.
- Dale, E. (1952). *Planning and developing the company organization structure*. New York: American Management Association.
- Danson, M. W. (1999). Debates and reviews. *Regional Studies*, 33(2), 157–173.
- Davidsson, P. (1989). Entrepreneurship and after? A study of growth willingness in small firms. *Journal of Business Venturing*, 4, 211–226.
- Davidsson, P. (1989). *Entrepreneurship and small firm growth*. Dissertation, Stockholm School of Economics/ The Economic Research Institute, Stockholm.
- Davidsson, P. (1991). Ability, need, and opportunity as determinants of small firm growth. *Journal of Business Venturing*, 6, 405-429.
- Davidsson P., Lindmark L. & Olofsson C. (1994). New firm formation and regional

- development in Sweden, *Regional Studies* 28, 395–410.
- Davidsson, P. & Delmar, F. (1997). *High-growth firms: Characteristics, job contribution, and method observations*. Paper presented at the RENT XI Conference, Mannheim, Germany, November 27-28.
- Davidson, P. & Wiklund, J. (2000). Conceptual and empirical challenges in the study of firm growth. In D. L. Sexton & H. Landström (Eds.), *The blackwell handbook of entrepreneurship* (pp. 26-44). Oxford, U. K.: Blackwell Publishers Ltd.
- Davidsson, P., Delmar, F. & Wiklund, J. (2002). Entrepreneurship as growth; growth as entrepreneurship. In M. A. Hitt, R. D. Ireland, S. M. Camp & D. L. Sexton (Eds.), *Strategic entrepreneurship: Creating a new mindset* (pp. 328–342). Oxford: Blackwell Publishers.
- Davidsson, P. & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18, 301–331.
- Davidsson, P., Delmar, F. & Wiklund, J. (2006). *Entrepreneurship and the growth of firms*. Northampton, M. A.: E. Elgar.
- Davis, R. (1951). *The fundamentals of management*. New York: Harper & Brothers.
- de Meza, D. & Southey, C. (1996). The borrower's curse: Optimism, finance and entrepreneurship. *Economic Journal*, 106, 375–386.
- Delmar, F. (1997). Measuring growth: Methodological considerations and empirical results. In R. Donckels & A. Miettinen (Eds.), *Entrepreneurship and SME research: On its way to the next millennium* (pp. 199–216).
- Delmar, F., Davidsson, P. & Gartner, W. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18, 189–216.
- Delmar, F. & Shane, S. (2006). Does experience matters? The effect of founding team experience on the survival and sales of newly founded ventures. *Strategic Organization*, 4(3), 215-247.
- Delmar, F. & Wiklund, J.. (2008). The effect of small business managers's growth motivation on firm growth: A longitudinal study. *Entrepreneurship Theory and Practice*, 32(3), 437–457.
- Dess, G. G. & Beard, D. W. (1984). Dimensions of organizational task environment. *Administrative Science Quarterly*, 29, 52-73.
- Dess, G. G., Lumpkin, G. T. & Covin J. G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal*, 18(9), 677–695.

- Deutskens, E., Ruyter, K. & Wetzels, M. (2006). An assessment of equivalence between online and mail surveys in service research. *Journal of Service Research*, 8(4), 346-355.
- Dill, W. R. (1958). Environments as an influence on managerial autonomy. *Administrative Science Quarterly*, 2, 409-443.
- Dill, W. R. (1962). The impact of environment on organizational development. In Malik, S. and Van Ness, E. H. (Eds.), *Concepts and Issues in Administrative Behaviour*. Englewood Cliffs, NJ: Prentice Hall (pp. 94-109).
- Drucker, P. (1954). *The practice of management*. New York: Harper & Brothers.
- Drucker, P. F. (1985). *Innovation and entrepreneurship: Practice and principles*. New York: Harper and Row.
- Duchesneau, D. A. & Gartner, W. B. (1988). A profile of new venture success and failure in an emerging industry. In B. A. Kirchoff, W. A. Long, W. E. McMullan, K. H. Vesper & W. E. Wetzel, Jr. (Eds.), *Frontiers of entrepreneurship research* (May 5-7, pp. 372-386). Babson College.
- Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly*, 17, 313-327.
- Dunkelberg, W.C. & Cooper, A.C. (1982). Patterns of small business growth. In Kae H. Chung (Ed.), *Proceedings of the academy of management journal* (pp. 409-413).
- Dyke, L. S., Fischer, E. M. & Reuber, A. R. (1992). An inter-industry examination of the impact of owner experience on firm performance. *Journal of Small Business Management*, 30(4), 72-87.
- Evans, D.S. (1987). Test of alternative theories of firm growth. *Journal of Political Economy*, 95, 657-674.
- Flamholtz, E. G. (1986). *Managing the transition from an entrepreneurship to a professionally managed firm*. San Francisco: Jossey-Bass.
- Fombrun, C. & Wally, S. (1989). Structuring small firms for rapid growth. *Journal of Business Venturing*, 4, 107-122.
- Fry, A. (1987). The post-it-note: An intrapreneurial success. *SAM Advanced Management Journal*, Summer, 4-9.
- Gartner, W. B. (1985). A conceptual frame work for describing the phenomenon of new venture creation. *Academy of Management Review*, October, 696-706.
- Gartner, W. B. (1989). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory and Practice*, 12(2), 47 – 68.
- Gartner, W.B. (1990). What are we talking about when we are talking about entrepreneurship? *Journal of Business Venturing*, 5, 15-28.

- GEM 2010 Global Report, downloaded from
<http://www.gemconsortium.org/docs/cat/1/global-reports> on 05.12.2011.
- GEM 2011 Global Report, downloaded from
<http://www.gemconsortium.org/docs/cat/1/global-reports> on 08.02.2012.
- GEM 2010 Germany Report, downloaded from
http://gemconsortium.org/docs/search?doc_cat_id=4&team_id=18&q= on
 05.12.2011.
- GEM 2005 Report on High-Expectation Entrepreneurship, downloaded from
http://www.gemconsortium.org/docs/search?doc_cat_id=2&sub_cat_id=16&team_id=0&q= on 07.02.2012.
- George, G. (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal*, 48, 661–676.
- Gilbert, B. A., McDougall, P. P. & Audretsch, D. B. (2006). New venture growth: A review and extension. *Journal of Management*, 32(6), 926–950.
- Ginn, C. & Sexton, D. (1989). Growth: A vocational choice and psychological preference. In B. Kirchoff, W. A. Long, W. E. McMullan, K. H. Vesper & W. E. Wetzel (Eds.), *Frontiers of entrepreneurship research* (pp. 612–625). Wellesley, M. A.: Babson College.
- Gist, M. E. & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability, *The Academy of Management Review*, 17(2), 183–211.
- Gompers, P., Kovner, A., Lerner, J. & Scharfstein, D. (2010). Performance persistence in entrepreneurship. *Journal of Financial Economics*, 96(1), 18–32.
- Grant, R. M. (2010). *Contemporary strategy analysis* (7th ed.). Chichester: Wiley.
- Greene, P. G. & Brown, T. E. (1997). Resource needs and the dynamic capitalism typology. *Journal of Business Venturing*, 12, 161–173.
- Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate data analysis with readings*. New York: Macmillan.
- Hakim, C. (1989). Identifying fast growth small firms. *Employment Gazette*, January, 29–41.
- Han, J. & Kamber, M. (2006). *Data mining: Concepts and techniques* (2nd ed.). Morgan Kaufmann.
- Hansemark, O. C. (2003). Need for achievement, locus of control and the prediction of business start-ups: A longitudinal study. *Journal of Economic Psychology*, 24(3), 301–319.

- Hay, R. K. & Ross, D. L. (1989). An assessment of success factors of non-urban start-up firms based upon financial characteristics of successful versus failed ventures. In Sr., R. H. Brockhaus, N. C. Churchill, J. A. Katz, B. A. Kirchoff, K. H. Vesper & W. E. Wetzel, Jr. (Eds.), *Frontiers of entrepreneurship research* (April 26-29, pp. 148-158). Wellesely, M. A.: Babson College.
- Hayward, M. L. A., Shepherd, D. A., & Griffin, D. (2006). A hubris theory of entrepreneurship. *Management Science*, 52, 160–172.
- Hebert, R. & Link, A. (1988). *The entrepreneur: mainstream views & radical critiques* (2nd ed.). New York: Praeger Publishers.
- Hellman, T. & Puri, M. (2002). Venture capital and the professionalization of start-up firms: Empirical evidence. *Journal of Finance*, 57, 169-197.
- Herron, L. A. & Robinson, R. B., Jr. (1993). A structural model of the effects of entrepreneurial characteristics on venture performance. *Journal of Business Venturing*, 8, 281-294.
- Hill, R. (1982). The entrepreneur: An artist masquerading as a businessman? *International Management*, 37(2), 21-22, 26.
- Hisrich, R. D. & Peters, M. P. (1986). Establishing a new business venture unit within a firm. *Journal of Business Venturing*, 1, 307-322.
- Hisrich, R. D. (1986). The woman entrepreneur: Characteristics, skills, problems and prescriptions for success. In D. L. Sexton & R. W. Smilor (Eds.), *The art and science of entrepreneurship* (pp. 61-81). Cambridge, M. A.: Ballinger.
- Hmieleski, K. M. & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, 52(3), 473–488.
- Holtz-Eakin, D., Joulfaian, D. & Rosen, H. (1994). Sticking it out: Entrepreneurial survival and liquidity constraints. *Journal of Political Economy*, 102, 53-75.
- Honig, B., Lerner, M. & Raban, Y. (2006). Social capital and the linkages of high-tech companies to the military defense system: Is there a signalling mechanism? *Small Business Economics*, 27, 419-437.
- Hoy, F., McDougall, P. P. & Dsouza, D. E. (1992). Strategies and environments of high growth firms. In D. L. Sexton & J. D. Kasarda (Eds.), *The state of the art of entrepreneurship* (pp. 341–357). Boston: PWS-Kent Publishing.
- Ilieva, J., Baron, S. & Healey, N. M. (2002). Online surveys in marketing research: pros and cons. *International Journal of Market Research*, 44(3), 361-376.
- Jaccard, J. & Turrisi, R. (2003). *Interaction effects in multiple regression* (2nd ed.). Thousand Oakes, C. A.: Sage.

- Jarillo, J.C.. (1989). Entrepreneurship and growth: the strategic use of external resources. *Journal of Business Venturing*, 4(2), 133-147.
- Kahneman, D. & Lovallo, D. (1994). Timid choices and bold forecasts. In R. Rumelt, D. Schendel & D. Teece (Eds.), *Fundamental issues in strategy: A research agenda* (pp. 71-76). Boston: HBS Press.
- Kanter, R. M. (1988). How to be an entrepreneur without leaving your company. *Working Woman*, November, 44-47.
- Katila, R. & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *The Academy of Management Journal*, 45(6), 1183-1194.
- Kirchhoff, B. A. (1994). *Entrepreneurship and dynamic capitalism*. Westport, C. T.: Praeger.
- Kirchhoff, B. A. & Greene, P. G. (1995). Response to renewed attacks on the small business job creation hypothesis. In W. D. Bygrave, B. J. Bird, S. Birley, N. C. Churchill, M. Hay, R. H. Keeley & W.E. Wetzels, Jr. (Eds.), *Frontiers of entrepreneurship research*. Wellesley, M. A.: Center for Entrepreneurial Research, Babson College.
- Kirchhoff, B. A. (1995). *Twenty years of job creation research: What have we learned?* Working Paper Series. Small Business Foundation of America.
- Kirzner, I. (1979). *Perception, opportunity, and profit*. Chicago: University of Chicago Press.
- Kolvereid, L. & Bullvag, E. (1996). Growth intentions and actual growth: The impact of entrepreneurial choice. *Journal of Enterprising Culture*, 4(1), 1-17.
- Korunka, C., Frank, H., Lueger, M. & Mugler, J. (2003). The entrepreneurial personality in the context of resources, environment, and the startup process—A configurational approach. *Entrepreneurship Theory and Practice*, 28(1), 23-42.
- Kübart, J., Grimmer, U. & Hipp, J. (2005). Regelbasierte ausreife bersuche zur daten qualitäts analyse. *Datenbank-Spektrum*, 14, 22-28.
- Kulicke, M. (1993). Chancen und Risiken junger Technologieunternehmen: Ergebnisse des Modellversuchs 'Foerderung technologieorientierter Unternehmensgruendungen', Heidelberg: Physica Verlag.
- Learned, E., Christensen, C., Andrews, K. & Guth, W. (1969). *Business policy*. Homewood, I. L.: Irwin.
- Lechner, C., Dowling, M. & Welpe, I. (2006). Firm networks and firm development: The role of the relational mix. *Journal of Business Venturing*, 21(4), 514-540.

- Lee, Don Y. & Tsang, E. W. K. (2001). The effects of entrepreneurial personality, background and network activities on venture growth. *Journal of Management Studies*, 38(4), 583–602.
- Leibenstein, H. (1980). *Beyond economic man*. Cambridge, M. A.: Harvard University Press.
- Levie, J. (2007). Immigration, in-migration, ethnicity and entrepreneurship in the United Kingdom. *Small Business Economics*, 28(2/3), 143-169.
- Levi-Strauss, C. (1967). *The savage mind*. Chicago: University of Chicago Press.
- Li, T. & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: Conceptualization and empirical examination. *Journal of Marketing*, 62(4), 13-29.
- Liao, J., Welsch, H. P., & Pistrui, D. (2001). Environmental and individual determinants of entrepreneurial growth: An empirical examination. *Journal of Enterprising Culture*, 9(3), 253–272.
- Liao, J., & Welsch, H. (2003). Social capital and entrepreneurial growth aspiration: a comparison of technology- and non-technology-based nascent entrepreneurs. *Journal of High Technology Management Research*, 14(1), 149-170.
- Locke, E. E., Mento, A. J. & Katcher, B. L. (1978). The interaction of ability and motivation in performance: An exploration of the meaning of moderators. *Personnel Psychology*, 31, 269-280.
- Low, M. B. & MacMillan, B. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management*, 14(2), 139-162.
- Lück, D. (2011). *Daten analyse mit SPSS für Fortgeschrittene 1*. Wiesbaden: Springer
- Lumpkin, G. T. & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21, 135-172.
- Malek, M. & Iback, P. K. (2004). *Entrepreneurship - Prinzipien, Ideen und Geschäftsmodelle zur Unternehmensgründung im Informationszeitalter*. Heidelberg: Dpunkt Verlag.
- Markman, G. D., Baron, R. A., & Balkin, D. B. (2005). Are perseverance and self-efficacy costless? Assessing entrepreneurs' regretful thinking. *Journal of Organizational Behavior*, 26(1), 1-19.
- McClelland, D. C., Atkinson, J. W., Clark, R. A. & Lowell, L. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.
- McDougall, P. & Robinson, R. (1988). New venture performance: Patterns of strategic behaviour in different industries. In B. A. Kirchoff, W. A. Long, W. E. McMullan, K. H. Vesper & W. E. Wetzell, Jr. (Eds.), *Frontiers of*

- entrepreneurship research* (May 5-7, pp. 477-491). Babson College.
- McGrath, R. G., MacMillan, I. C., Yang, E. A. & Tsai, W. (1992). Does culture endure, or is it malleable? Issues for entrepreneurial economic development. *Journal of Business Venturing*, 7, 441-458.
- McGrath, R. (2002). Entrepreneurship, small firms, and wealth creation: A framework using real options reasoning. In A. Pettigrew, H. Thomas & R. Whittington (Eds.), *Handbook of strategy and management* (pp. 101-13). London: Sage.
- Meyer, J. W. & Scott, W. R. (1983). *Organizational Environments: Ritual and Rationality*. Sage: Beverly Hills, CA.
- Miller, D. & Friesen, P. H. (1984). *Organizations: A quantum view*. Englewood Cliffs, N. J.: Prentice-Hall.
- Miller, D. (1987). The structural and environmental correlates of business strategy. *Strategic Management Journal*, 8(1), 55-76.
- Mok, A. L. & Van den Tillaart, H. (1990). Farmers and small businessmen: A comparative analysis of their careers and occupational orientation. In R. Donckels & A. Miettinen (Eds.), *New findings and perspectives in entrepreneurship* (pp. 203-230). Aldershot, U. K.: Avebury.
- Naffziger, D. W., Hornsby, J. S. & Kuratko, D. F. (1994). A proposed research model of entrepreneurship. *Entrepreneurship Theory and Practice*, 18, 29-42.
- Newbert, S. L., Kirchhoff, B. A., & Walsh, S. T. (2007). Defining the relationship among founding resources, strategies, and performance in technology-intensive new ventures: evidence from the semiconductor silicon industry. *Journal of Small Business Management*, 45(4), 438-466.
- Nummela, N., Puumalainen, K. & Saarenketo, S. (2005). International growth orientation of knowledge-intensive SMES. *Journal of International Entrepreneurship*, 3(1), 5-18.
- Nunnally, J. C. (1967). *Psychometric theory*. New York: McGraw-Hill.
- Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric theory*. New York: McGraw-Hill.
- Oakey, R. P. (1993). Predatory networking: The role of small firms in the development of the British biotechnology industry. *International Small Business Journal*, 11(4), 9-22.
- Oliver, C. (1997). The influence of institutional and task environment relations on organizational performance: The Canadian construction industry. *Journal of Management Studies*, 34(1), 99-124.
- Pagano, P. & Schivardi, F. (2003). Firm size distribution and growth. The *Scandinavian Journal of Economics*, 195(2), 255-274.

- Paine, F. T. & Anderson, C. R. (1977). Contingencies affecting strategy formulation and effectiveness: An empirical study. *Journal of Management Studies*, 14, 147-158.
- Palmer, M. (1971). The application of psychological testing to entrepreneurial potential. *California Management Review*, 13(3), 32-39.
- Pennings, J. M. (1975). The relevance of the structural-contingency model of organizational effectiveness. *Administrative Science Quarterly*, 20, 393-410.
- Penrose, E. (1959). *The theory of growth of the firm* (2nd ed.). (1995, 3rd Ed.). Oxford: Oxford University Press.
- Petty, R. E., Wegener, D. T. & Fabrigar, L. R. (1997). Attitudes and attitude change. *Annual Review of Psychology*, 48, 609-47.
- Pfeffer, J. & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.
- Phillips, B. D. & Kirchoff, B. A. (1989). *Innovation and growth among new firms in the U. S. economy*. Babson Entrepreneurial Research Conference.
- Pierce, II J. A., Freeman, E. B. & Robinson, Jr., R. B. (1987). The tenuous link between formal strategic planning and financial performance. *Academy of Management Review*, 12(4), 658-675.
- Porter, M. E. (1981). The contributions of industrial organization to strategic management. *Academy of Management Review*, 6, 609-620.
- Praag, C. M. van. (1999). Some classic views on entrepreneurship. *De Economist*, 147, 311-335.
- Rauch, A. & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.
- Reynolds, P. & Miller, B. (1988). *Minnesota new firms study: An exploratin of new firms and their economic contributions*. Centre for Urban and Regional Affairs, Minneapolis, Minnesota.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C. & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13-32.
- Robinson, J. P., Shaver, P. R. & Wrightsman, L. S. (1991). Criteria for scale selection and evaluation. In J. P. Robinson, P. R. Shaver & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 1-16). San Diego, C. A.: Academic Press.

- Roccas, S., Sagiv, L., Schwartz, S. H. & Knafo, A. (2002). The big five personality factors and personal values. *Personality and Social Psychological Bulletin*, 28(6), 789-801.
- Romanelli, E. (1987). New venture strategies in the microcomputer industry. *California Management Review*, 30(1), 160-175.
- Ross, J. & Staw, B. (1993). Organizational escalation and exit: Lessons from the Shoreham nuclear plant. *Academy of Management Journal*, 36, 701-732.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, whole issue.
- Rychlak, J. F. (1981). *Introduction to personality and psychotherapy: A theory-construction approach* (2nd ed.). Boston: Houghton Mifflin.
- Sandberg, W. R. (1986). *New venture performance: The role of strategy and industry structure*. Lexington, M. A.: Heath.
- Sapienza, H. & Grimm, C. (1997). Founder characteristics, start-up process and strategy/structure variables as predictors of shortline railroad performance. *Entrepreneurship Theory and Practice*, 22(1), 5-24.
- Schell, D. W. & Davig, W. (1981). The community infrastructure of entrepreneurship. In K. H. Vesper (Ed.), *Frontiers of entrepreneurship research* (pp. 563-590). Wellesley, M. A.: Babson College.
- Scherer, F. M. (1980). *Industrial market structure and economic performance* (2nd ed.). Chicago: Rand McNally.
- Schrage, H. (1965). The R&D entrepreneur: Profile of success. *Harvard Business Review*, 43(6), 56-69.
- Schumpeter, J.A. (1942). *Capitalism, Socialism and Democracy*. New York: Harper & Brothers.
- Schumpeter, J. A. (2000). Entrepreneurship as innovation. *Entrepreneurship: The Social Science View*, 51-75.
- Schumpeter, J. (1935). *Theorie der wirtschaftlichen Entwicklung [Theory of economic growth]*. München, Germany: Von Duncker & Humbolt.
- Schutjens, V. & Wever, E. (1999). Determinants of new firm success. *Papers in Regional Science*, 79,135-159.
- Schwenk, C. R. (1988). *The essence of strategic decision making*. Lexington, MA: Heath.
- Scott, W. R. (1987). *Organizations: Rational, natural and open systems*. Englewood Cliffs, N. J.: Prentice-Hall Publications.

- Scott, W. R. (1992). *Organizations: Rational, natural and open systems*. Englewood Cliffs, N. J.: Prentice-Hall Publications.
- Scott, W. R. (2001). *Organizations: Rational, natural and open systems*. Englewood Cliffs, N. J.: Prentice-Hall Publications.
- Semrau, T. (2010). *Networks in New Venture Creation and Development*. Dissertation thesis, Universität zu Köln.
- Sexton, E. A. & Robinson, P. B. (1989). The economic and demographic determinants of self-employment. In R. Brockhaus, N. Churchill, J. Katz, B. Kirchoff & K. Vesper (Eds.), *Frontiers of entrepreneurship research* (pp. 72-90). Englewood Cliffs, N. J.: Prentice-Hall, Inc.
- Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review*, 25(1), 217-226.
- Shane, S. & Cable, D. (2002). Network ties, reputation, and the financing of new ventures. *Management Science*, 48, 364-381.
- Shane S., Locke E. & Collins, C. (2003). Entrepreneurial motivation. *Human Resource Management Review*, 13, 257-279.
- Shapiro, A. (1975). The displaced, uncomfortable entrepreneur. *Psychology Today*, 9(6), 83-88.
- Shapiro, A. & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (pp. 72-90). Englewood Cliffs, N. J.: Prentice Hall.
- Shaver, K. G. & Scott, L. R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16(2), 23-45.
- Sheppard, B., Hartwick, J. & Warshaw, P. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations and future research. *Journal of Consumer Research*, 15, 325-344.
- Simyar, F., Doutriaux, J. & Argheyd, K. (1988). *Characteristics of founders and the growth of entrepreneurial high-tech Canadian manufacturing firms*. Paper presented at the Conference of Small High-Tech Firms in Small Countries. EIASM, Brussels, June 27-29, 1988.
- Stanworth, M. J. K. & Curran, J. (1976). Growth and the small firm: An alternative view. *Journal of Management Studies*, 13, 95-110.
- Starbuck, William H. (1976). Organizations and their environments. In Marvin D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1069-1123). Chicago: Rand McNally.
- Starr, J. & MacMillan, I. (1990). Resource cooptation via social contracting: Resource acquisition strategies for new ventures. *Strategic Management Journal*, 11, 79-93.

- Starr, J. A., & Bygrave, W. D. (1991). The assets and liabilities of prior start-up experience: An exploratory study of multiple venture entrepreneurs. In N. C. Churchill et al. (Eds.), *Frontiers of entrepreneurship research*: 213–227. Babson Park, MA: Babson College.
- Stearns, T. M., Hoffman, A. N. & Heide, J. B. (1987). Performance of commercial television stations as an outcome of interorganizational linkages and environmental conditions. *Academy of Management Journal*, 30, 71-90.
- Steinmetz, L. (1969). Critical stages of small business growth; when they occur and how to survive them. *Business Horizons*, 12, 29-36.
- Stevenson, H. H. (1984). A new paradigm for entrepreneurial management. In *Proceedings from the 7th Anniversary Symposium on Entrepreneurship, July 1983*. Boston: Harvard Business School.
- Stevenson, H. H. & Gumpert, D. E. (1985). The heart of entrepreneurship. *Harvard Business Review*, 63(2), 85-94.
- Storey, D.J., Keasey, K., Watson, R. & Wynarczyk, P. (1987). *The performance of small firms: Profits, jobs and failures*. London: Croon Helm
- Storey D. J. (1994). *Understanding the small business sector*. London/ New York: Routledge.
- Stuart, R. & Abetti, P. A. (1986). Field study of start-up ventures. Part 2: Predicting initial success. In R. Ronstadt, J. Hornaday, R. Peterson & K. Vesper (Eds.), *Frontiers of entrepreneurship research* (pp. 21-32). Wellesley, Mass.: Babson College.
- Sullivan, Arthur & Sheffrin, Steven M. (2003). *Economics: Principles in action*. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall.
- Swayne, C. B. & Tucker, W. R. (1973). *The effective entrepreneur*. Morristown, N. J.: General Learning Press.
- Timmons, J. A. & Spinelli, S. (2003). *New venture creation. Entrepreneurship for the 21st Century* (6th ed.). New York: McGraw Hill View.
- Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing*, 25(2), 192-202.
- Tushman, M. L. & Anderson P. (1986). Technological discontinuities and organizational environments. *Administrative Science Quarterly*, 31, 439-465.
- Van de Ven, A. H., Hudson, R. & Schroeder, D. M. (1984). Designing new business start-ups: entrepreneurial, organizational, and ecological considerations. *Journal of Management*, 10, 87–107.

- Vecchio, R. P. (2003). Entrepreneurship and leadership, common trends and common threads. *Human Resource Management Review*, 13, 303 - 327.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz & R.H.S. Brockhaus (Eds.), *Advances in entrepreneurship, firm emergence, and growth* (Vol. 3, pp. 119–138). Greenwich, C. T.: JAI Press.
- Vesper, K. (1980). *New Venture Strategies*. Englewood Cliffs, NJ: Prentice Hall.
- Walker, G. & Weber, D. (1984). A transaction cost approach to make-or-buy decisions. *Administrative Science Quarterly*, 29(3), 373-391
- Wally, S. & Baum, J. R. (1994). Personal and structural determinants of the pace of strategic decision making. *Academy of Management Journal*, 37(4), 932–956.
- Warneryd, K. E. (1988). The psychology of innovative entrepreneurship. In W. F. van Raaij, G.M. van Veldhoven & K. E. Warneryd (Eds.), *Handbook of economic psychology* (pp. 404-447). Dordrecht, the Netherlands: Kluwer.
- Webster, F. A. (1976). A model for new venture initiation: A disclosure on rapacity and the independent entrepreneur. *Academy of Management Review*, 1(1), 26-37.
- Weinzimmer, L.G., Nystrom, P.C. & Freeman, S.J. (1998). Measuring organizational growth: Issues, consequences and guidelines. *Journal of Management*, 24(2), 235-262.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171-180.
- Wiklund, J. & Shepherd, D. (2003). Aspiring for, and achieving growth: The moderating role of resources and opportunities. *Journal of Management Studies*, 40(8), 1919-1941.
- Witt, P. (2007). Entrepreneurs' networks and the success of start-ups. *Entrepreneurship and Regional Development*, 16(5), 391-412.
- Wold, H. & Jöreskog, K. G. (1982). The ML and PLS techniques for modelling with latent variables: Historical and comparative aspects. *Systems Under Indirect Observation: Causality, Structure, Prediction*, 263–70.
- Wright, M., Robbie, K., & Ennew, C. (1997). Serial entrepreneurs. *British Journal of Management*, 8, 251–268.
- Wright, M., Westhead, P., & Sohl, J. (1998). Editors' introduction: Habitual entrepreneurs and angel investors. *Entrepreneurship Theory and Practice*, 22(4), 5–21.
- Yli-Renko, H., Autio E. & Tontti, V. (2002). Social capital, knowledge, and the international growth of technology-based new firms. *International Business Review*, 11(3), 279–304.

- Zahra, S.A. & Ellor, D. (1993). Accelerating new product development and successful market introduction. *S.A.M. Advanced Management Journal*, in press.
- Zahra, Shaker A. (1993). Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. *Journal of Business Venturing*, 8(4), 319-340.
- Zahra, S. A. (1996). Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technological opportunities. *Academy of Management Journal*, 39(6), 1713-1735.
- Zhao, H., Seibert, S. E. & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265-1272.